The Builder.

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Alnwick: the Town and Castle.

AT present, many of us entertain vague ideas on the subject, but we readily allow that something should be done to insure the public health (under Providence). We are not so clear, nor so unanimous, as to what that something should be. The difficulty presses upon us. The larger our population, the more imperative it becomes to put into practice those laws which are necessary for the physical well-being of man. Through inattention to these laws, 237,498 lives were sacrificed in the nine years ending 1856, and fever has entered the palaces, and made nations sorrowful.

The duties of Boards of Health, too, are scarcely understood. These bodies sometimes labour under the impression that, having called in an eminent engineer to consider the state of the town under their charge, and to carry out drainage and waterworks, their duties are over — that their battle is fought; when, in point of fact, their duties may be considered to have commenced, or at all events the responsibilities connected with them to be unshared, from the day that these primary works were completed. Influenced by the latter consideration, we have surveyed Alnwick—a town which, nine years ago, was placed in the hands of Mr. Rawlinson, who laid down a comprehensive drainage and a water supply. Previously to this good work, in 1849, the town had been visited by cholera. As if to show the efficacy of the improvements, in 1857, when the fell disease again swept over the metropolis and large towns, with devastating effect, the shadow of its wings wrought no ill in Alnwick. But at the present writing an epidemic—scarlatina—is raging with virulence. As near as may be computed, 10 per cent. of the population either are, or have been, visited with some form of this disease. The local *Mercury* records, among other cases, the deaths of four individuals in one family:—"On the 20th ult., the infant daughter; on the 23rd ult., aged 32, Sarah, the wife; 24th ult., aged 2½, Mary Jane, the daughter; 28th ult., aged 9, William, the son; being four of the family of Mr. Howey Sharpe."

Alnwick is situate in Mid-Northumberland, about three miles off the North-Eastern line of railway. Passengers bound thither alight at a small, uncovered, comfortless station, at Bilton, and are thence conveyed, by a single branch line, over a pretty ride of green country, with here and there a white farmhouse, with sea and hills in view, and over a fir-planted dell, through which runs a thread of a burn, white and sparkling like a film of frost, to Alnwick. The town is built in a valley upon the banks of the Aln,—an unnavigable stream, and is encompassed by hills and moors. In the picturesque country behind these hills, to the east, is Howick, the seat of the statesman Earl Grey; to the north is Falloden, the seat of Sir George Grey, her Majesty's secretary of state; in the west is Eslington, a residence of Lord Ravensworth; and behind the fir-crested hills on the north-west, lies Chillingham Castle, the seat of the Earl of Tankerville. The Alne comes trickling down from among the hills in the west country, where there is wealth of prehistoric relics,—camps, cairns, and cists,—over porphyritic pebbles, and roots of trees and mosses, and upturned stepping-stones, getting broader and broader by the way, till it flows between banks brinked with trees, through a noble park by the foot of the Abbey of Hulne, and past the remains of the famous Abbey of Alnwick; is dammed out into a broad mill-stream; passes beneath a stone bridge; is again an ornamental sheet of water; flows calmly on through the tastefully laid out dairy-grounds of his grace the Duke of Northumberland; glides beneath a light suspension-bridge, beneath a handsome stone bridge, bearing on its eastern parapet a fac-simile of the lion that guards Northumberland House; and sweeps grandly past Alnwick Castle. This, as our readers know, is the seat of the monarch of these parts,—the Duke of Northumberland. We give a view of it.*

The outline of Alnwick Castle, as seen from the opposite banks of the river, has been considerably altered since our last account, of the works in progress there. The common attribute of a castle is impregnability; but this the alterations in question have certainly not compassed. As we stand on the opposite bank of the river and examine the aspect of the building, noting the green eminence on which it stands, which the Celtic occupiers of the county would have called a breast, so gently sloping and yet so roundly swelling, we count five exposed entrances. One is the main internal entrance from the barbican, now full in view externally, by reason of the removal of the ancient towers which formerly protected the castle from this point of sight; a second is a new gateway leading outwards on the south side; a third in the sallyport tower, with a parapeted flight of steps; a fourth leading up a loftier flight of steps by the constable's tower to a terraced walk at the base of the old curtain wall; and that which appears a fifth gateway, after more scrutiny, turns out to be an arched recess, which carries part of the new line of a terraced walk. Further alterations are apparent in the façade of commissioner's, clerk's, steward's room, and servant's hall offices, facing the south, which a century since were built on the banks of the moat: these have had the sash-windows picked out, and others of ecclesiastical type inserted. This same line of frontage embraces the long range of kitchen-offices. This large bulk of building is all without the confines of the castle, an arrangement that is also an innovation upon precedent. The building operations of the year have been further marked by the partial erection of a very large room in the stableyard, which has laundries and washhouses in the vaulted cellars. The large room is to serve as a place in which to give dinners, concerts, and theatrical entertainments to the ducal tenantry and tradespeople, and in the intervals of this festive service it will be used as a coach-house. This hardly comes up to our previous expectation of a Percy banqueting-hall, more especially as being in the stable-yard, it is but in the outskirts of the castle instead of in that innermost place which ancient hospitality offered to guests. The only other banqueting-room in the castle is that on the site of the ancient Percy's dining-hall, which is but of ordinary palace dining-room dimensions. There are, too, other novelties peeping over the battlements—common red tile chimney-pots. In explanation of this incongruity, we learn that in spite of the application of every modern appliance, the smoke nuisance cannot be overcome. The smoke-curing doctor at one time applied a device which made the parapets appear to be covered with rooks; but this odd-looking contrivance was of no avail, and the old-fashioned chimney-pot is now under experiment. The castle being exposed full front to the north and east winds, has always been a prey to eddies and whirls; and the destruction of the outer ward by the removal of the Falconer's and Armourer's towers has left it still more unprotected from these troublesome borderers.

* See p. 97.

The castle was completely sewered from Mr. Rawlinson's plans at an early date. Like those of all ancient palaces, such drains as there were were found to be full of the accumulations of ages. Hard and soft water were conveyed from private reservoirs in the ducal parks; and water-closets have been provided adjacent to nearly every bedroom. The Duke of Northumberland was among the first to recognize the importance of sanitary reform. We shall cite in proof of this, shortly, the experiments that have been made with the Alnwick sewerage. Meanwhile, we find our way over the Lion bridge to the barbican, and pass into the interior of the castle. Internally, the Italian decorations of the castle have been progressing apace with the works of the exterior; and those who sat in the Royal Institute of British Architects and heard Professor Donaldson describe how "the legends and ballads, the hills, the valleys, and the plains of the surrounding country" were to be interwoven with the Roman style, may now see how this has been done. The costly decorations of ceilings, chimney-pieces, shutters, doors, and dados, to the state rooms, library, ante-room, saloon, drawing-room, and dining-room, have been carried out in the greatest minutiæ with the same acanthus scroll-forms peculiar to the ornament of the cinque-cento period, without any deviation or device whatever to recall the traditions of the house as promised by the professor. Even the furniture, the looking-glass frames, and picture-frames, are being carved in the same style; and a foreign gallery of pictures—the Commucini gallery—has been imported to complete the Italian *ensemble*. Of the twenty-one men and six boys we saw in our former visit carving these delicate and famous decorations, we learn that five are dead, several others gone on their various ways, leaving a small remainder to complete the furniture and picture-frames; while the head, Signor Bulletti, is now seeking employment at Newcastle, where, says an advertisement in the Newcastle journal, communications addressed to him at the office of that paper will have prompt attention. The question of the preference of the wood work over plaster has not been borne out either; as, for the six ceilings which have been panelled and carved in wood, twelve have been effected in equally rich decorations in plaster. A further fact interesting to English architects is the joint conduct of the work by two architects—the one Italian, the second English. For some time it was a matter of doubt whether the decorations of the grand staircase and vestibule would be given to foreign or native skill. In anticipation of English decoration, the staircase walls were built of polished stone; but this has been since cut away, and a plaster surface made for Italian ornaments.

The new gateway on the south side of the castle leads to the gardens, which are situate some quarter of a mile to the east of the castle. Here we find that his grace has found employment for a large number of men in the additions and alterations to the gardens, which are now in course of development to a size and magnificence commensurate with the increased accommodation in the castle. Several acres of sloping lands have been added to the gardens, which were already extensive enough to boast of peacheries, pineries, and vineries; and these, with the addition of a new conservatory, will enable them to vie with those of any nobleman in the kingdom.

Emerging into the town by the stern and cunningly contrived barbican, and crossing the now filled-in mote and paved way in place of the drawbridge, we face a wide, roomy street called Bailiff-

gate. The whole of this street has been recently lowered several feet, and the sunny side of the street paved handsomely with York flags, the less fortunate shadowy side being provided with but a narrow footway of a porous, indigenous sandstone. The execution of this scheme has entailed the drawback of the erection of a flight of steps up to the doors of the houses, and, as these are guarded with iron railings, they are likely to be dangerously in the way in the dark, unless the gas-lamps which we see newly placed prove an efficient remedy. With the exception of Sundays, when the parishioners wend their way to the church at the end of the street, half a dozen persons are rarely to be seen at a time in Bailiff-gate. There are many localities where there is more traffic that stand in need of similar improvement. The first house in the street, called the commissioner's, is of a square form and colossal proportions, which, unfortunately, overwhelm and overshadow the picturesque barbican of the castle to which it is adjacent. The rest of the same side of the street is composed of neatly-fronted houses with small-paned windows,—the residences of the duke's bailiff, the duke's solicitor, the duke's clerk of works,—a passage-way leading to tenements, or "rooms to let," where a large ash-pit serves many families, a neatly-fronted Roman Catholic chapel and schools, set back from the line of houses, the residence of Dr. Hedley, with a peep of a beautiful country through the open carriage-entrance, a shop or two, the Red Lion Inn, where horses are lodged in the rear, who walk up a flight of steps and pass through the main passage of the house, a house or two more, another passage with a small farm-yard in the rear, haystack, stabling, and piggeries; and, at a right angle, a row of small houses overlooking the east end of the old parish church. At the end nearest the castle of the opposite side of the street there is a ruined building, supported by massive buttresses, inclosed in a space boasting a few trees, and next to it the entrance to a small square of ruinous buildings, partly tenantless, yet where there are occupants of rooms over stables and under ruined granaries, and where there is a vast ash-pit on one side adjacent to a tenantless building—a forlorn and dejected-looking place—and next to this again some neatly-fronted solicitors' offices, with the objectionable flights of new external steps to the doors projecting on to the pavement as before-mentioned, then Hubbick's veterinary surgery and forge, and small house or two and a shop. The parish church is situate on a piece of high table-land in the midst of a crammed and partially-closed church-yard. It has undergone many alterations, both externally and internally. It is now remarkable for a late perpendicular tower and a south aisle with windows and pinnacled buttresses, of excellent perpendicular workmanship, which, though fretted and worn, and out of the perpendicular, should be scrupulously preserved. The interior is a heterogenous mixture of oddments which, almost for the curiosity of their appearance, might be retained without offence; a chancel ceiled with elaborately-thin plaster fan-groining of the Georgian era, high canopied stalls for the ducal pews, faded and tattered banners, helmets and gauntlets of no ancient date, whitewash and colourwash, high pen-pews facing all parts of the compass, and huge galleries which are so close to the ceiling that sky-lights have been inserted to give light to the occupants.

At the west end of the churchyard the land falls to a low level, descending a road called Canongate. This is a long street, occupied on both sides by tenements, in some few cases of a neat description, with a greater proportion of those of a poorer kind. At the head of the street, where you may turn and see the old parish church behind you, or the richly-wooded ducal parks and dim Cheviot Hills, in the distance, before you, are the gas-works. On the west side going down the street is a row of dilapidated thatched cottages, with a second row close upon them in the rear. In all cases the tenements are portioned off as rooms to let, separate families occupying each room, and nearly all using yards, water-closets, and ash and offal pits in common. Sewerage has been applied, and an abundant supply of water laid on to this district; but with these exceptions, it still possesses the unsanitary conditions which were conducive to choleraic disease and fever described in the report to the General Board of Health in 1850, as is proved by the fact of the prevailing epidemic having now visited it. Pigsties, stablings, with imperfect drainage for them, vast ash and offal pits, garden soil 4 feet above the level of the floors, all crowd close upon the houses; and the percolations from them soak gradually down from the highest to the lowest points. The road is unevenly macadamized, and poor pebble gutters, with gratings at intervals, are used in common by the tenants, mostly of the front rooms, as places on which to dispose of their slops and suds. The paving is narrow, broken, and bad, and scavenage but rarely applied. One particular spot, called Canongate-hole, is perhaps in a worse condition than others, as no particular place is provided for the ashes, offal, and manure from the dwellings and pigsties; nor are they carried away: these accumulations lie about in soddened heaps. At the lowest end of the street one owner of property has attempted to put his tenements into a comfortable and habitable state. Seven different families occupy as many rooms, for whom are provided, in a nicely paved yard, seven lock-up coal-places; but even these increased comforts stop short of sanitary requirements: only two dark water-closets are provided for the seven families, and but one ash and refuse pit, which, at the period of our visit, was crammed full, disseminating a choking odour, and swarming with rats. The adjacent property belonging to the same owner is kept with much nattiness: each tenant must take his turn to cleanse the yards and the water-closets, which latter are kept clean though they are dark! but the ash-pit is again a large reservoir of ammonia-yielding refuse, covered and pitch dark, with a small trap-door, through which the offal is put in and got out. These are savoury conditions compared to those of other properties in the same street; but as if to prove that neatness is of no avail where there are these accumulations, an occupant of one of the front rooms has been attacked by the prevailing epidemic. We must urge that sanitary reform does not cease with the application of sewerage and water-supply: it simply begins with them. The contiguity of the rotten contents of ash and offal pits is as dangerous to health as imperfect drainage: want of light and ventilation are equally so; and the crowding of families into single rooms is quite as pernicious. This said Canongate, the old road to Alnwick Abbey of which but the gateway remains, is the main thoroughfare through which thousands of excursionists from Berwick, Newcastle, Sunderland, Shields, and other towns, flock on their way to the duke's parks and grounds, which are always freely thrown open to them. On the day of the local flower-show held on the site of Alnwick Abbey, the 5,000 visitors who pass down Canongate must carry away with them impressions that are not very complimentary.

Re-ascending Canongate we notice opposite the gasworks, besides Walker-gate, a second road branching off immediately under the churchyard, and called Painter's-hill, where there are houses in much too close contiguity to such a deadly neighbour. The very neat and comfortable-looking parsonage is set back in the glebe land facing us as we climb the last length of the steep street. The incumbent, the Rev. Court Granville, we learn from many lips, is a zealous worker among the poor, and is staunch in his endeavour to ameliorate the condition of their dwellings; and, glancing at the sloping street which he may see from his windows, we must own there is work for him ready to his hand. Skirting the parsonage grounds a road up a steep hill, called Northumberland-street, having a few nice houses with a breezy westerly aspect facing the moors on one side of it, leads to a lofty gateway tower known as Potter-gate, built on the site of one of the ancient towers on the town walls. Referring again to the report of the state of the town at the time of the prevalence of the cholera, the street which runs from this gateway then enjoyed an unenviable notoriety. It is wide and airy, and leads downwards to Narrow-gate, a low and narrow street in the heart of the town. Near the gateway tower, and standing back from the houses, is the Presbyterian Chapel; and close to this is the minister's very neat house. The houses, however, get of an inferior character as they descend the street; and at the lowest part, which opens, as we have said, into Narrow-gate, a mausoleum-like public water-pant is built in the centre of the road. The houses in the neighbourhood of this pant are inhabited by the Irish poor. Here whole families, or rather tribes, live in dark rooms one behind another, down yards, with either a borrowed light or with windows in which the glass has been superseded by paper, rags, bits of sacking, or wisps of straw; and here the national characteristics of the race are maintained. The familiar *fracas* are conducted in the open street with all the national spirit; and woe betide the unlucky philanthropist who would interfere, or even the passer-by who is not on the most vigilant guard. Out come pokers and even fenders as impromptu weapons in the friendly war. One group of buildings, nicknamed "the tunnel," which was mentioned in the report before-noticed as being in too terrible a condition to be described—"a long, dark passage, badly flagged, with the irregularities filled with putrid urine, leads into a yard which is a perfect nursery for sickness,"—might be still mentioned in the same terms. Cavillers and persons averse to sanitary reform, who entertain the theory that the seeds of disease are "in the air," and alight on individuals, or countries, or cities, by some unknown agency, point to the fact that this Tunnel escaped scatheless in the choleraic visitation. But it must be borne in mind, that when a given spot is inhabited by tramps or other migratory persons they leave the sources of ill health, that their mode of living breeds, behind them; and although they themselves may not suffer from the hot-bed of disease thus reared, their stationary neighbours do. This is clearly shown now, when the great works at the castle have given permanent employment to a numerous body of Irish labourers, who, being consequently permanent residents, have fallen under the laws that rule sanitary science—resulting at the present writing in three deaths from scarlet fever in the identical tenements known as the Tunnel. It is not assuming the prophetic mantle unadvisedly to say, that as long as the Tunnel remains as it is, zymotic disease will never be absent from Alnwick.

We are now in the elbowed centre of Narrow-gate; and there we will stop for a time.

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.

LECTURE II.*

I MUST not pursue the subject of chimneys further than just again to remind you of the æsthetic advantages afforded by the old mode of treating the chimney hearth. The contemptible little pinched-up compositions of thin, flat, marble slabs which now usually decorate this social centre of domestic hospitality contrast most painfully with the large and generous treatment of the fireplace, and with the sculpture and painting, which were lavished during the period to which I am adverting, on this place of honour in the halls of former days.

Although time has left us but few illustrative examples of these fireplaces in England, we have but to visit Nuremberg, or any of the older cities of the Netherlands, to find noble examples still surviving the wreck of time. Even the great hall in the Hôtel de Ville, in Paris, probably familiar to you all, which is of the time, probably of Francis I., affords a most remarkable example, sufficient to dwarf down into insignificance every similar object I have met with in England, although I am aware there are examples of the time of Henry VIII., of Elizabeth, and of Charles I., of no mean character.

At the magnificent Châteaux of Blois and Gaillon, the most remarkable features are their gardens. They are, of course, laid out in the formal artificial manner usual in the gardens of the early period to which these examples belong. In the centre of both these gardens is a fountain of much elegance of design, although the jets of water issue from sources not altogether unobjectionable. The practice of throwing the water from the mouths of human masks cannot be defended, although it is a very common expedient. It was suggested probably by the gargoyles of Mediæval times, when monsters, often of the most preposterous design, were made to emit water, both in fountains and at the eaves of roofs; but these, also, may claim a far more ancient origin. We know how commonly the rainwater which fell on the roofs of Greek temples were made to issue from the mouths of lions carved on the cyma of the cornice: they were, in fact, the true gargoyles of the Greeks. The practice may perhaps be partly due to æsthetic causes; for there are few subjects more captivating to the sculptor than the lion's head, so admirably sculpturesque in the breadth and even in the grandeur of its details. But still another and remoter origin may be assigned to the practice. The overflowing of the Nile, which, as you know, annually reanimates that arid country, and gives occasion to so much periodical rejoicing, occurs when the sun is in Leo,—a coincidence quite sufficient to lead the Egyptians to adopt the lion's mouth as the source from whence their liquid treasures were made to issue.

At the fountains of the Château d'Anet jets of water are seen issuing from Diana's bow, and from

* See p. 73, *ante*.

the horns of her accompanying stag. I am, indeed, bound to admit that the rude artists of this not highly-polished nor very fastidious age caused jets to flow from still more exceptional, although, perhaps, more natural sources.

These devices are common enough at the period of which we are speaking, and can only be excused on the ground of the extreme difficulty (which all must have felt who have tried their hands at designing fountains) of devising any perfectly unobjectionable, and yet ornamental mode of emitting the water. But, perhaps, the most notable feature in these early French gardens is the arcade, or covered way, which incloses the whole area. As a gallery offering a sheltered walk at all seasons of the year, whether too hot or too wet for out-of-door exercise, these covered walks must always have been a welcome refuge. The luxury was probably borrowed from the Italians, with whom these arcades or colonnades had already become a favourite adjunct to the villa. They, also, in their turn, may claim a classic origin. Those who have read Pliny's description of his Villa Laurentina will remember how he dwells on the crypto porticus as one of the luxuries of his favourite retreat—a luxury which, though preserved in the cloisters of the Middle Ages, seems to have been, without good reason, overlooked and neglected in modern gardening.

In these French gardens I also perceive indications of the pergola, or trellissed walk, which forms so elegant as well as so commodious a part of almost every well-appointed Italian garden.

I will not further detain you by dwelling on the other beautiful chateaux represented in these volumes, although they present to us most attractive objects, such as Château Chenonceau, one of the most theatrically-picturesque buildings that can be imagined—Château Chantilli, perfectly Mediæval in its general design, although in its details savouring strongly of the more modern style that Catherine di Medicis encouraged, and had, in fact, introduced into France—Château d'Anet, less Gothic, but equally varied, original, and picturesque.

Such are the contents of these curious and valuable volumes. A careful and critical examination of them will satisfy any impartial mind that they take a very narrow view of the subject who fancy that all architecture necessarily divides itself into the Classic and the Gothic schools, and that, therefore, if we reject the one, we must necessarily adopt the other. Such, happily, is by no means the case. I have on a former occasion endeavoured to show that such was not the case when the quatro-centists of Italy put away Mediævalism in art with the casque and gauntlet which they had outgrown. They were too good artists and too sensible men not to perceive that modern civilization required something more than a return to columns and pediments, and they accordingly struck out a style of design perfectly original, and in many respects more beautiful than anything that had preceded it.

In the same way we find that when, a little later, the artistic and inventive genius of France was directed to the production of designs in the Renaissent style, it never occurred to their fertile minds that it was incumbent on them to plunge into a purblind system of copying the works of former times. On the contrary, we see in these buildings of the time of Catherine that a style of great beauty and force was possible, which yet was equally remote both from Greek and Gothic. True art is ever young and productive; it needs only adequate incentives and encouragement to warm it into life. A well-stored portfolio of photographs would turn any man, however uneducated in art, into an architect, if the careful repetition of old forms be all that is required of him.

As I have devoted this evening to looking into a few books, I must be excused if in closing one volume and opening another, I find myself following a somewhat desultory course. It does not, however, appear to me to be necessary to observe any especial, historical sequence. The book which next cames to hand is a splendid volume of earlier date than that to which we last adverted, and is not without a certain amount of romance in its history, for it consists of verses composed by the Duke of Orleans after his capture at the battle of Agincourt, and with which composition he beguiled the tedium of his imprisonment in England. The illustrations are beautifully-executed miniatures, and of great interest as explanatory of the buildings, habits, and costume of the period. One of these illustrations is of especial interest, as it presents a view of London in the fifteenth century. It is taken on the banks of the Thames, and represents the Tower in the foreground and the bridge in the middle distance. The very rapid shoot of the current at the bridge is plainly indicated. At a short distance from the Tower is seen the creek of "Bellyne's gate," on the banks of which creek and below bridge is a considerable building, probably the Custom-house. The architecture of this building is portrayed with great minuteness, and is manifestly drawn from the actual objects, not conventionally but with considerable effort at correctness of representation. It is worthy of observation that that the lowest story consists of an arcade of perfectly Renaissance character, the arches being circular, or nearly so, springing from ordinary columns apparently very much like Roman Doric.

The superstructure, however, is of quite Mediæval character, presenting a series of steep gables of dissimilar designs and with the windows apparently mullioned. The perfectly Italian aspect of the lower part of the building seems to me to be conclusive evidence of the existence of the style of the Renaissance in England very much earlier than is usually supposed.

The Porta Honoris at Cambridge is generally pointed to as one of the earliest, if not the earliest, example in England of the quasi-Classic style. This gateway, however, must be nearly 150 years later than the building, near Old London-bridge, so carefully delineated in this illumination.

Now that I am touching on the subject of illustrated manuscripts, I need not omit allusion to the remarkable book known as the "Codex Aureus." It forms part of the Royal Library collected by George III., and is certainly one of the gems of that collection. It has many claims on our attention, inasmuch as it appears to be beyond a doubt that it was executed for Charlemagne. It is enriched with magnificent illustrations, which may be fairly presumed to be specimens of the highest art which Europe in the beginning of the ninth century was capable of producing, and is, moreover, considering its great age, in excellent preservation. The prevailing character of the architectural features is manifestly what it is usual to designate as Romanesque. Each page represents one arch divided into three subordinate compartments by slender pillars carrying three arches. This arrangement of arches seems to have taken its rise somewhere about the period in the history of architecture with which this volume is contemporaneous; perhaps, indeed, even earlier.

The practice of building small arches in a continuous series, springing from the capitals of small pillars, bears a far earlier date. We find them in abundance at the Palace of Diocletian. Such small arcades occur, too, at the building near Ravenna, called Theodoric's Palace, and a continuous range of them originally encircled the multangular tomb of that monarch. These small arcades, arranged in successive superimposed orders, came to be used to excess, as you, no doubt, well know, and covered the towers and gables of the Lombardic and subsequent ages. I may add that in paintings and mosaics of so early a date as the fourth century, represented in Seroux d'Agincourt's great work, these arcades abound.

But in the illustrations of a manuscript preserved in the Laurentian Library, at Florence, to which the date of the fourth century is assigned, a more distinct foreshadowing occurs of the Gothic mullioned window. It represents a large semicircular arch, comprising within its span four minor arches, thus dividing it into four narrow openings. It is true the head of the large comprising arch is blanked: there is shown on it a circle, probably decorative only, and not perforated; but the transition from this to an ordinary four-light Gothic window is easy and natural. In the "Codex Aureus," to which I have been referring, we have very plainly this germ of the Gothic window, and we have it even more distinctly developed in MSS. of the ninth century, of which representations are given by D'Agincourt. But not only were these small arcades the putative parents of mullioned windows; to them, also, it can hardly be doubted, we owe the triforium of our ecclesiastical architecture. I cannot refrain from here reminding you of the analagous use of these subordinate arcades in the Westminster Hall, as built by our William Rufus. In the twenty-sixth volume of the "Archæologia" you will find the representation of that triforium story forming an open arcaded passage-way, obtained in the thickness of the wall. This curious feature in the domestic architecture of the twelfth century I had the pleasure of being the first to explore and delineate, when the interior of the walls of Westminster Hall was opened out and exposed to view, under my brother, Sir Robert's directions, with a view to the reface of masonry of those walls in 1837.

I have, perhaps, detained you too long in thus tracing the pedigree of these mural arcades, but they are of some importance in the history of architecture. It may be difficult to point to any feature more strongly characteristic of Mediæval architecture, or more definitely distinguishing it from strictly Classic art.

In the singular works of early Christian architecture to which I have been adverting it is impossible not at once to recognize a strong savour of Byzantine art. There is, for example, in the Codex Aureus an almost infinite variety of frets and friezes introduced of a quasi-Classic character, all most carefully and elaborately executed, and with a manual dexterity and precision which seem to imply great practice in such works. The Greek labyrinth fret occurs in utmost variety, and those interlacing patterns that stamp a peculiar character on the art of ornamental design in this Byzantine style occur in these illuminations in utmost profusion. Whether accompanying runic inscriptions in Ireland, in Norway, or elsewhere, or whether seen carved in stone in the earliest Christian buildings of Lombardy, or worked in mosaic on the walls of Greek churches, or depicted upon vellum in these beautiful manuscripts now under our consideration, there is a similarity of design and a general agreement in the manner of treatment which is certainly well worthy of observation. What adds especial interest to this curious kind of ornament is that it was not, apparently, derived from or suggested by any similar ornament in the preceding Classic school. Could it have been traced back to ancient Rome, we should not have been surprised at its occurrence in localities so widely apart, and in styles of design so widely differing; but nothing, as far as I know, occurs in Roman art from whence these intricate interlacings could have been derived—unless, indeed, we may suppose that the *guilloche* was the parent of this ornament, which would, in that case, take back the idea to Athens itself, and to how much remoter a period I know not. Even Assyrian art is not without traces of it.

Whether so derived, or whether it was the original product of a Teutonic or a Byzantine mind, certainly its wide prevalence is remarkable. It seems not unlikely that the facilities which these interlaced ornaments afforded of producing the device of a knot having no ends, would recommend it to the favour of the early Christian artists as an emblem of eternity, as well as of brotherhood. But whatever its origin, the idea was certainly most prolific. Besides being productive of a variety of mere ornaments, such as we see on this MS. of the time of Charlemagne, it suggested no doubt the monsters devouring their own tails, which we see so commonly portrayed in Mediæval sculpture; and the true lovers' knots depicted in a thousand familiar, although unmeaning shapes, on our walls and ceilings, down to the time of Elizabeth, and, for aught I know, to the present day.

That warns me that I must not now introduce to your notice any more of the literary and artistic treasures stored up in our magnificent national collection. I am well aware of the very superficial nature of these few slight notices: they present to you but the faintest glimpse of the almost endless stores that the liberality of the country has been enabled to accumulate under the guidance and with the assistance of her best scholars. In calling your attention to the few books which I named, I am, I fear, subjecting myself to the sarcasm of the old Greek author who tells us of a certain "Scholastic" who, being desirous of recommending a house to the favour of his friends, carried about with him a brick or two by way of specimen of the entire mansion. Yet scanty and very inadequate as the samples may be which I have this evening laid before you, I feel sanguine in the belief that my few remarks and criticisms will not have been made in vain, if they have produced in your mind a desire to seek for further satisfaction at the fountain-heads; to consult them for yourselves, and to liberalise and enlarge your studies by a wider field of investigation.

A careful contemplative study of the causes of the almost awful sublimity of the Coliseum, for example, is calculated perhaps to encourage and even to generate a greatness of manner, and to elevate the artistic tendencies of the mind; and to teach us that the grandest effects, in our art, are far more readily attainable by simple general forms than by resorting to that excessive elaboration and subdivision of details which (perhaps I may be permitted to say) is one of the least commendable tendencies of the present day, and against which it would be well that you should be on your guard.

Then, again, a critical examination of the interesting production of the age of the Renaissance

in France—an examination so greatly facilitated by the two beautiful volumes of Catherine de Medicis, which I have been adverting to, is well calculated to fertilize the mind of a young architect, and to show to him how the combination of two very different kinds of beauty is capable, in the alembic of Genius, of being made to produce still another beauty—a *tertium quid*—differing very materially from its two components, yet partaking of the merits of both.

Such an examination would, furthermore, satisfy him that it was no mere love of innovation, no mere freak of fashion, that led our forefathers to lay aside in their architecture the stern and rigid air of Mediævalism. They abandoned mullions and tracery in their windows, and made them wide, and square, and open, not in sport and for the sake of a frivolous change, but because they were beginning to learn to appreciate more fully the value of light and air, and because they began to perceive that there were other means of excluding an enemy and securing their personal safety and an inviolate hearth besides loopholing and crennelating their dwellings. An inquiry into these great changes in their habits of building is a curious and not an unprofitable inquiry. It is common enough to hear it said that the revival of a taste for classical literature led to the study and subsequent adoption of Classical architecture. Whereas the two revivals were, in truth, strictly contemporaneous; and it is by no means improbable that they may be regarded, not as one being consequent on the other, but that both were necessary results of a common cause—namely, the advance of civilization, involving the acquirement of new habits and new wants.

The other volumes of which I have this evening made mention have an antiquarian rather than a practical value, and to that extent are, no doubt, less suitable subjects for me to urge on your attention here. Yet those manuscripts are samples of a great store of similar works which our national Museum may be justly proud to possess, and which, whilst they are of the highest literary and historical value, must ever be precious also in the eyes of artists, inasmuch as the illuminations which adorn their pages represent faithfully the condition of the fine arts during the Mediæval period, and are, as it were, the golden link that connected the ancient with the modern schools of painting and design.

SEWER VENTILATION AND DEODORIZATION.

CHARCOAL FILTERS.

AN official report has been made by Mr. Haywood, the engineer and surveyor to the City Sewers Commission, and Dr. Letheby, their medical officer of health, as to the experiment with charcoal in sewer deodorization and ventilation on Dr. Stenhouse's principle, to which we lately drew attention.

The district experimented upon is in the eastern portion of the City. It includes a space bounded by Bishopsgate-street on the west, from Cornhill to Widegate-street; by Middlesex-street and Somerset-street on the east to the City boundary; and by the Minories and then by Leadenhall-street to Cornhill on the south; the whole of the main throroughfares above-named being included in the area. It comprises a space of about 59 acres, with about 1,700 houses, and about 14,000 inhabitants.

The points to which attention was directed by the two reporters were the following,—

"1st. The deodorizing power of the charcoal.
2nd. The length of time that the same charge of charcoal will continue to deodorize the sewer gases.
3rd. The effect the air filters have on the ventilation and temperature of the sewers.
4th. The exact cost of the experiment, so as to obtain data from which to estimate the probable expense of the process if it were applied to the whole city, or even to the metropolis."

The deodorizing power of the charcoal (continues the report), has been satisfactorily proved to be complete. Not only have there been no complaints from the public of stenches from the ventilating gratings, but we have ascertained by actual observation that the odour of the sewer gases is not perceptible when they have traversed the charcoal.

As to the duration of the powers of deodorization, the reporters state that they have hardly sufficient proof. The charcoal seems to lose much of its power when saturated with water: this we ourselves anticipated. If kept dry, the charcoal would not require renewal oftener than once a year; but in the existing circumstances it required renewal once a month.

As to the effect of the air-filters on ventilation, the reporters state that they cannot give a very positive opinion. The ventilator did not seem to be so perfect as in other cases; but the differences as to temperature which denoted a difference of degree in ventilation were extremely slight. Danger to workmen in the sewers has not been materially increased by the application of charcoal to the ventilators. The reporters recommend charcoal respirators for the use of these men.

With respect to the cost of the process:—The expenditure incurred in fitting up the 104 ventilating shafts was 918*l.* 18s. 5d., which is at the rate of about 8*l.* 16s. 8d. per ventilator; but an experiment, it is remarked, is necessarily more costly than an established system; and a much less sum than this may be taken as a fair average of the probable expense of extending the process even to the whole of the City. The total expense of reparation and renewal of damaged trays, frames, and coverings, averaged 16s. 6d. per ventilator per annum. The cost of supervision, supplying and changing the charcoal, was 8s. 9d. per ventilator, making together 1*l.* 5s. 3d. per ventilator per annum. The very large cost for reparation was mainly attributable to the repeated breakage of one class of apparatus used. This item might, therefore. at a future day be considerably lessened.

The general conclusions from these experiments and from the consideration of collateral evidence are,—

"That dry charcoal in the presence of atmospheric air is a powerful means of destroying the mephitic gases and vapours of sewers and house drains; that the charcoal filters may be used with efficacy in the course of the air channels from the drains and closets of houses, as well as in the ventilation of the public sewers; that, in applying the charcoal, those contrivances should be used which offer the least resistance to the free passage of the air; and, lastly, that the situation of the filters is best when the charcoal is protected from wet and from dirt, and is easily accessible."

LONDON FIRES.

NEXT after the accounts of the public health there are few reports more important than the yearly official report of the Superintendent of the Metropolitan Fire Brigade. To the report for 1861 we miss the well-known signature of the veteran Mr. Braidwood; and find, instead, that of the new superintendent, Capt. E. M. Shaw. From the report we learn that the fires of the past year have been considerably in excess over those of 1860. The increase of 1861 is 127 fires; but, compared with an average of twenty-eight years during which the establishment has been in existence, the increase is 391. When we refer to the subsequent list, which for the purpose of more easy reference is given in a tabular form, we find that the increase of fires is far greater than we can account for by the additional number of houses which have been erected in the metropolis.

1861.	
Total number of calls throughout the year	1,409
Of these false alarms were.....	89
And chimney alarms	137
Of those which may be classed as fires there were.....	1,183

And it is worth while to remark, that of this number the result, notwithstanding the exertions of the firemen, was the total destruction of fifty-three buildings, &c. Thus one in every twenty-two premises was entirely burnt out; and 332, over one-fourth of the whole, were considerably damaged: there were 798 cases of slight damage.

When considering this most important subject it should be noticed that the "totally destroyed" list, fifty-three, is *twenty-five* in excess of the average of the past twenty-eight years.

The increase of the number of fires which have ended in total destruction is to be accounted for by the terrible fire in Tooley-street, which resulted in the almost total destruction of thirty-three buildings. On this great fire the report says: "There is every reason to believe that, but for a serious delay and deficiency of water, and some violent explosions which took place at the commencement, the fire would have been confined to the building in which it originated."

In six of the other cases mentioned as having been totally destroyed, the supply of water was either late or deficient. Of the premises which have been entirely burnt, twenty-five, or nearly half, are described as in the use of dangerous trades, such as cabinetmakers, carpenters, hay and straw salesmen, steam saw-mill, &c.

The hand land- and steam water-engines are reported to be in effective condition; and the land steam fire-engine renders such good service, that three others of a similar description will shortly be added; and, ere long, this description of fire-engine will likely come into general use; for, by the introduction of a simple contrivance, the difficulty and danger of rapidly heating the water has been avoided. This consists of the application, in the fire-box, of a small jet of gas, which keeps the water constantly boiling: this costs but little, and prevents risk from the machinery when steam is raised fifteen minutes from cold water; and it also insures the raising of sufficient steam in less than five minutes.

For long before his death, it was the opinion of Mr. Braidwood that the increase of the number of fires was to a considerable extent to be attributed to the growing use of gas. This is, perhaps, not to be wondered at, when we consider the now extensive introduction of gas into warehouses, churches, libraries, railway stations, dwelling-houses, shops, workshops, theatres, &c.

The number of fires in premises in which gas is used amounted to 796, while those which occurred where there was no gas amounted to 387,—about one-half of the whole of the London fires of the past year. But, although a considerable number of these fires are given distinctly as having originated from gas lighting; when we consider the immense extent of the various industries which are now carried forward; the hurry which in these days is connected with various branches of business; we cannot but think that if, now, the use of oil lamps and moveable and other candle-lights were extended into all such establishments as those to which we have just referred, the number of fires would be far greater than they are at present. There is, however, a manifest want of care in the use of gas-lights in many warehouses and workshops. The superintendent remarks that moveable gas-brackets are frequently placed within 20 inches from a roof; and he suggests that in no case should they be at less than 36 inches from the ceiling; that they should be protected by a hanging shade; and on the sides by stops on the swivel-joint, which would prevent the joint moving beyond a safe distance: this could readily be done; and might with advantage be made a stipulation in connection with fire insurance. In some of the great warehouses and depôts in the east of the metropolis, with vast interiors in which goods of almost every description are constantly being loaded and unloaded, we have often seen the blazing gas-lights moving in all directions in the wind without any kind of protection: in such cases damage may be produced by the firing of a piece of straw or cord, some part of a packing-case, &c., cause a vast amount of ultimate mischief.

All measures should be tried to lessen the number of fires. When, however, we find that the spread of the Tooley-street fire is clearly attributed to the want of a timely water-supply, and to the explosive material contained in the wharf; and that other serious fires have been attributed to want of water in time; measures should at any rate be taken to prevent the continuance of large fires in consequence of the want of water. Of the evils of large warehouses we have before now spoken.

FARM-BUILDINGS.*

AGRICULTURE, a patriarch among the arts and sciences, must be now viewed with new light, for farming has been developed in so remarkable a manner of late years, that it has become not only a manufacturing but a chemical process. Stall feeding has been ascertained to admit of the most rapid growth of flesh, and the, therefore, approved practice has called for new arrangements in farm-buildings. In lieu of the traditional farmyard—the open square, littered with straw, surrounded rectangularly by sheds, barns, stables, lofts, &c.—a cattle village is required, possessing individual residences for every animal reared or used. Hence in a large farmstead, rows and rows of stalls are required, which are furnished with every appliance, cleanliness, order, and good economy can suggest; and the planning of these, in combination with other requisite buildings, so as to secure the best aspects the respective sites will allow—the most warmth and least chill for the beasts—the best disposition of the various departments, so as to save unnecessary expenditure of labour,—demands an experienced, as well as accomplished, mind.

It is conceded that in farm-buildings properly concentrated the straw barn should be central, or as nearly so as possible; that the machinery for cutting, and the apparatus for cooking the different articles of diet for horses and cattle, should

* "The Book of Farm Buildings: their Arrangement and Construction." By Henry Stephens, F.R.S.E., and Robert Scott Burn, engineer. (Blackwood & Sons). 1861.

be easily communicated with from this point; and that the sheds of the animals requiring the greatest bulk of these materials for their litter and food, should be nearest to these depôts; while the accommodation for young stock, sheep, milch cows, and pigs, may conveniently diverge from this centre—the dairy and poultry yard approaching the confines of the farm-house. It will be seen by this arrangement, the carrying to and fro of food and manure is reduced to the minimum of labour. The farmer's wife is close to her dairy, the butter-milk and other dairy refuse are close to the pigs, the milch cows and pigs are handy to the dairymaid. In the same way the stables should be grouped with the buildings accommodating the different departments that pertain to the work and food of the horses: so that when a horse is taken from the stable, it is close to the cart and implement sheds; and these are, again, for the convenience of repairs, in the immediate neighbourhood of the blacksmith's and capenter's sheds or shops.

Agriculture alone requires but few farm-buildings. Even barns for the holding of corn are superseded to a great extent. For it is found that corn is best kept in the stackyard till the time comes for it to be threshed; when the sheaves are conveyed to the machine in the threshing-house, whence the grain is taken away in sacks, and the straw conveyed to the straw-barn. The new threshing-machines which are taken to the field promise to number even the comparatively modern threshing-house amongst the things that are of no further use. But when stock is taken into account, it is found economical to provide the most complete and convenient farm-buildings that can be devised. Modern farmeries are therefore not much more than groups of cattle-dwellings; the exceptions being the stack-yard, the threshing-house, straw-barn, granary, engine and boiler house, steaming or cooking room, root-house, farm-servants' cottages, cart and implement sheds, gig-house. Old-fashioned plans of farming allowed the cattle the run of the inclosed yard, which was well littered with straw. Here they were, to some extent, protected from the winds, and their manure concentrated on a given, if not a small space; but great waste was involved, not only in the washing away of the best qualities of the manure thus exposed, but in the conversion of cattle food into animal heat instead of marketable meat. Flesh being formed by food, it becomes a matter of utility and economy to take care that the train of this formation is not diverted by any necessity arising in the animal system for heat; hence modern farming provides good housing for stock, so that heat being thus furnished, the whole of the food contained may be converted into flesh. However, cattle yield a double source of profit—meat and manure; and the contrivances for securing both of these must be equally taken into account.

Good housing means warm, dry, and well-ventilated compartments in covered sheds. In the case of cattle, for the proper and economical collection of manure, these are built with sunken flooring, on which litter is laid; and for its easy distribution over the farm tramroads are often made use of. In stables it is not found judicious to have the floors lower than the level; but boxes for cattle are excavated to a depth of 2 feet. In both, feeding passages at the heads of the stalls are made, which, like the dung-passages behind the stalls or boxes, are furnished with tramways, along which the food can be wheeled with great saving of labour.

We are gradually approaching a still more complete order of things. The perfection of agricultural machinery will yet work wonders, as the most experienced of our farmers are the first to assure us. The triumphant application of town sewage as a manure will inaugurate another era in the history of farming. And it may be that the conversion of other substances to manure, by chemical processes or otherwise, will call for the erection of buildings on the homestead suitable for such manufacturing purposes.

The authors of the Book of Farm-buildings set out with an expression of their conviction that farm-buildings should be adapted to the description of farm on which they are built, and that it ought to be possible to tell by a glance at them whether it is pastoral farming, or dairy farming, carse, common, suburbial or any other description of farming that is carried on by their aid. So far all must agree with them; but when they assume that they are the originators of this theory we must differ from them. This is a principle fully recognized, and not less so in what we may call bucolic architecture than in any other phase of the noble art. Our authors lay claim to further originality in the suggestion of the arrangement by which the straw barn is made the central-point in farm-buildings; and here again we must demur, as prize essays on farm-building, written at the invitation of the Royal Agricultural Society so long as twelve years ago, particularly insisted on this identical disposition. We have one more crow to pluck with them on the score of an implied recommendation of their work "to the mechanic who may be constructing or the agriculturist who may be planning highly interesting varieties of farm-buildings" in preference to the employment of an architect. We confess we cannot guess by what train of thought persons at all acquainted with building matters can bring themselves to recommend a measure that has always been found to be neither wise nor cheap. The only persons who might, with propriety, pursue the hazardous proceeding of amateur building are emigrants,—and to colonists about to commence or extend agricultural or stock-rearing operations we would, certainly, speak in favour of this compendious guide.

The illustrations are copious, showing details of the construction of embankments, dams, weirs, culverts, drains, dry stone-dykes, wells, tanks, farm road, as well as of every part of farm buildings. The designs for farm-houses, however, are no more nor less than designs for villas, some of which have been avowedly published as such in another work by Mr. Scott Burn. Whether something more characteristic and unmistakeable would not be more appropriate is, of course, a question of importance. If pastoral farm-buildings should be distinctly known from dairy farm-buildings, it does not seem quite clear why the farm-house should not enjoy a similar distinctive character, and be immediately distinguishable from a suburban villa.

The subject of farm labourers' cottages has been freely gone into, and as freely illustrated. In a work of this kind it would be impossible to urge too far the importance of due attention to the provision of good housing for labourers. If warm, dry, well-ventilated abodes assist the formation of flesh and preservation of health in cattle, how economical it must be to provide the same for the labourer. If over-crowding damp, dark, unventilated stables produce glanders, mange, blindness, coughs, swelled legs, and inflamed lungs among the horses occupying them, we may be sure that dwellings equally badly constructed will produce as much evil among their human inhabitants. As Cobbett urged, "if we suppose the great Creator to condescend to survey his works in detail, what object can be so pleasing to him as that of the labourer, after his return from the toils of a cold winter's day, sitting with his wife and children round a cheerful fire?" And what, we may ask, is likely to be more displeasing than the spectacle of many of his creatures dragging on a miserable existence in a damp, dismal abode?

Among the practical suggestions of an economical tendency is the proposal to place an iron kiln floor over the boiler-house, by which means an apartment heated by warm air would be obtained for the drying of grain, sacks, or barn-cloths. All contrivances to make necessary expenditure serve supplementary purposes must assist the realization of remunerating profits.

Not the least interesting part of the volume before us is that giving plans of Flemish, American, and French farmsteads. American farming is full of novelties. An American farmstead, for the sake of economy, is constructed in the form of a large barn, within which are cow-stalls, sheep-sheds, stables, machine-rooms, boiling-houses, implement-houses, waggon-sheds, carpenters's sheds, and, in a word, as much accommodation as is required. Some American farmers will fatten as many as a thousand head of cattle at a time; and pigs in as great a proportion. Sty feeding or rearing is out of the question for the latter, who therefore roam about. As, in their endeavour to keep themselves warm of winter nights, the weaker ones were frequently smothered by the stronger, a contrivance called a sifting piggery has been resorted to. This consists of a shed divided into three compartments, to the first of which there are very small entrances, only large enough to admit the smallest hogs; and to the second entrances of sufficient size to admit the middling-sized hogs: this sifting process leaves the third division in undisputed possession of the largest hogs. Another curious arrangement is made in favour of the pigs. The floors of corn-cribs are raised about three feet above the level of the ground for the purpose of admitting pigs beneath them to pick up scattered corn, and whose intrusion for this purpose is expected to prevent *the accumulation of rats.*

Messrs. Stephens & Burn show their own plans of farmsteads by isometrical plans, which are completed into isometrical perspectives by dotted lines,—a novel mode of illustration, enabling a clear idea of the interior of the different parts to be obtained at the same time that the exterior form is seen.

WELL-SINKING AND BORING IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

IN the paper read and discussed at the Society of Arts on Wednesday evening, the 29th ult., "On some recently-executed deep Wells and Borings," much valuable information was given as to works at a distance, in France and parts of England; but nothing was said of some wells recently made, or attempted to be made, near home. It would have been interesting to have learned all the facts as to a well and boring now on hand at the head of the Serpentine, Hyde-park. A well has also been sunk and bored at Kensington, which is to supply water for the Royal Horticultural Gardens, and probably also for the Great Exhibition Buildings of this year. We give the facts connected with this work as we have recently learned them. The contractors for the new well at Kensington are, as our readers know, Messrs. Easton, Amos, & Sons. Mr. Tilly, of Enfield, has performed the work of sinking and boring.

Stratification passed through.

Feet.		Feet.
18.	Made ground	18
22.	Loamy gravel; little water	40
198.	Hard blue clay; "London clay"	238
54.	Pebbles, sand, and water	292
20.	Green sand and water	312
4.	Live grey sand and water	316
1.	Flints, surface of chalk	317
84.	Chalk, beds of flints, and water	401

401 feet vertical.

The well is 5 feet clear in diameter; and has 9-inch brickwork in cement, from the surface to a depth of 200 feet, vertical. The bore-hole is 201 feet deep from bottom of well. Water rises to within 130 feet of surface, or to some 70 feet deep in shaft. The pumps, lifting water at a rate of 100 gallons per minute, only reduce the head some 18 inches, and this speedily rises to its level when pumping ceases: 100 gallons per minute are equivalent to 144,000 gallons each day. The water, in quality, is pronounced "excellent:" it is, in fact, chalk spring-water.

At 312 feet in depth the water from the green sand was not so abundant, but stood at 20 feet higher level than at present. The chalk, therefore, though containing more water, must have a lower general level than the water in the green sand.

The contractors have fitted up some beautiful pumping machinery, both for the deep lift from the well and for garden fountains and cascades. The tall chimney is, however, an ugly structure. After Mr. Rawlinson's work on "Tall Chimneys," it seemed less likely that we should find the old, plain, tapering furnace shaft, amidst the ornamental work of the Royal Horticultural Gardens.

CONSERVATION OF ANCIENT MONUMENTS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary general meeting of members was held on Monday evening last, at the House, in Conduit-street.

The Chairman, Mr. Digby Wyatt, V.P., observed that the chief business before the meeting that evening was the consideration of the paper lately ready by Mr. Scott, on the Conservation of the Various Ancient Monuments scattered throughout the kingdom. He had no doubt but that in the interval that had elapsed since the reading of the paper, many gentlemen had been led to consider the subject, and would be prepared that evening to throw additional light upon it. He had himself ventured to throw out a suggestion that they should take a general view of restorations, inasmuch as the great monuments of art being as it were common property, possessed a common interest in the eyes of the architect and archæologist, and were entitled to all the care and protection which could be extended to them. The best description of restoration was, in his opinion, to hold the hand and only gently aid where assistance was absolutely required, to prevent the ravages of decay. Having said thus much, he would call upon Mr. Scott (who, perhaps, had some additional happy thoughts or suggestions to offer), to open the discussion.

Mr. Scott, R.A., in responding said, that he had

very little to add to the paper which he had already read, and the inordinate length of which would, he should hope, be sufficient to prove that he had done all in his power to exhaust the subject. At the same time he would like to add a few words in calling attention to that part of the paper which related to proposals and suggestions, and to the motion with which he had ventured to bring it to a conclusion. The general subject to which he wished to direct the attention of the profession and the public was the great damage done to ancient remains by time and neglect, and also by ruthless alterations and "over restorations." Now, although it was impossible to arrest effectually the hand of time, or, perhaps, to prevent some causes of destruction, there could be no doubt but that much might be done to reduce the effect of these causes, and to extend the duration of those unrivalled remains with which our country was so richly studded. His general suggestion was, that with regard to restorations there should be some viligant watch constantly kept over them by persons whose particular tastes and studies rendered them fit for the duty; and he thought it was also right and proper that such a suggestion should proceed from the Institute of Architects, and that from that Institute should emanate such communications as might be considered necessary to insure the preservation of those monuments, whether ruins or buildings, still in use, which were subject to the same causes of decay, or subject to the more frequent danger of over-restoration and ruthless injury by way of alteration. No one who had visited our ancient ruins could have failed to observe the constant disintegration going on; and if the suggestions which he had offered were carried out with reference to them alone, so as to arrest that decay, it would be well worth the trouble. But when to the ordinary decay to which he referred as so fatal to our unrivalled monuments was to be added the ill-judged restoration of churches and other buildings, it was evident that the appointment of a vigilance committee was still more loudly called for. In the latter class of cases time and the elements were not the only causes of destruction. They had to contend with the will of men; and this could only be done by setting up a strong and firm will of their own, which would be effectual towards mitigating the evils of which they complained. He therefore proposed that they should form a small standing committee of the Institute, who should not only for themselves observe what was going on, but who should keep up a constant system of communication with antiquarian and architectural associations all over the kingdom, to induce them to form centres of observation in their own districts. It seemed to him that by adopting such a course they might, to say the least, do a great deal of good, although they might not be able to effect all they wished. With regard to the modern "restoration" of churches, he could not suppose that all the persons who damaged those sacred edifices were moved to do so from any bad instinct, but rather from not having sufficiently considered the subject. One useful object, therefore, would be to consider the entire principle of restorations, and to lay down a code of rules, as suggestions only, but which should be circulated liberally thoughout the kingdom. This, in his opinion, was one of the first things which should be done, as it would indicate to others interested the course which the Institute considered ought to be taken. This was all he had to say at present, and he should conclude by suggesting that the committee should take the initiative in laying down, in conjunction with other architectural and antiquarian bodies, a code of rules for the preservation and conservation of our ancient monuments.

A resolution to appoint a committee having been proposed,

Mr. Street expressed the pleasure with which he rose to second the proposition, because it appeared to him that the committee which Mr. Scott wished to see appointed might effect much good. He wished, however, before referring more immediately to that part of the subject to refer, in opposition, to a view which had been taken by one or two gentlemen who had followed Mr. Scott on the first evening when the subject was discussed, namely, that it might be well to memorialize Government to appoint a commission to draw up reports on the state of our ancient monuments. This was, in his opinion, a proposition so fraught with danger to the buildings themselves, to the individuality of artists, and to the success of the architectural profession, that he hoped the committee proposed by Mr. Scott would take the place of Government in the matter, so as to prevent departmental interference. They had only to cross the Channel to see the effect of Govenment interference by way of commission. That commission had no doubt acted with great energy and skill. They had catalogued the public buildings all over the country, and their reports to the Minister of the Interior were of great value. But unfortunately those reports had cut both ways. They had recommended that funds should be applied for the wholesale restoration of buildings, and the consequence was that general damage was done to all the buildings taken in hand by the Government. He feared that if the suggestion for Government interference were carried out, the first thing would be the appointment of a Government secretary to attend on the Government commission, and then there might be a Government architect, who might perhaps be an engineer, or perhaps be neither an architect nor an engineer. Mr. Scott had referred to a vigilance committee, which would enforce a *veto*; but such a power could not be obtained without an Act of Parliament, and that Act of Parliament they were not likely to ask for, nor would it be granted if they did. He was of opinion that a committee which would from time to time deal with the question, and obtain assistance from gentlemen out of the profession, who were also men of learning and taste in such matters, was calculated to do much good. By such means, suggestions could be obtained from all quarters, which would perhaps have the effect of making architects study those buildings more than they did at present. He was surprised that on the last evening of discussion it appeared to be forgotten that a large number of our buildings had already guardians especially appointed to take care of them. All the churches in England, for instance, had legal guardians in the bishops, the archdeacons, and rural deans, whose peculiar province it was to see that our ancient buildings were preserved and conserved. He thought, therefore, that suggestions ought to be made to them in the first instance. In some dioceses, no works of church restoration were allowed to be commenced without the consent of the diocesan. As an illustration, he might mention that in the diocese of Oxford the Bishop insisted upon having the plans submitted to him; he then consulted with his professional adviser, and thus a certain safeguard against mutilation was secured. As a general rule, however, bishops knew nothing whatever about the edifices in their diocese, until perhaps they were called to consecrate them. The archdeacons and the two houses of convocation might, also, deal with the subject. There were also a great number of societies throughout the country, whose assistance and co-operation might be asked. Other facilities might likewise be brought into operation. Mr. Parker, for instance, had published two most valuable works on ecclesiastical typography, in reference to the diocese of Exeter and Ely. Every church in the diocese of Oxford was shortly described in that work, which, if consulted before any works of restoration were commenced, might be productive of great advantage. The Cambridge Camden Society, too, had obtained a good deal of information on the subject, under the head of "Church Schemes," which might be collected and placed in the library. It was, however, quite certain that no organization which the Institute could set on foot would do good without the careful education of architects. Mr. Scott had already referred to this subject, and had said some things which were as unpleasant to hear as they were undoubtedly true; for he had said that greatly as old buildings had suffered from the ravages of the elements and of time, still that they had suffered more by restorations at the hands of incompetent persons. This was a sad thing to be obliged to say, but there could be no doubt of the fact, that many churches were "restored" by gentlemen who had never studied the subject, but had merely undertaken the work as a matter of business in the ordinary way. One of the things which was mainly wanted was that architects should themselves take the trouble of studying old buildings. Upon this subject Mr. Scott had offered many useful suggestions, and the proposed committee might probably collect more. He (Mr. Street) was disposed to lay great stress upon the necessity of the personal attention of the architect to the buildings he undertook to restore. It was impossible for an architect thoroughly to understand a building unless he measured it carefully and drew it with his own hands. Whenever, therefore, the work of a good man turned out to be wrong, they might depend upon it that he had delegated the duty to others, and that the work had been done without his own personal attention. Holding this view as to the responsibility attaching to an architect, he thought that no architect should undertake a restoration unless he was prepared to give his personal attention to it. He thought they should rather prop them up with iron than rebuild them; and, for his own part, he would much rather strengthen an ancient roof with iron supports, or an ancient wall with buttresses, than destroy them and replace with new work. He was aware that it was difficult to find a builder who would carry out one's views in this respect—for builders preferred new walls to old ones; and that it was also difficult to find clients who preferred old work to modern. Depend upon it if old work was once allowed to go down, it was a hundred to one if it ever went up again. He also held as a general rule that it was better to design a new building than to reproduce an old building that could not be kept up. He admitted there was great difference of opinion. There were likewise some details in the matter of church restoration which, if attended to, would prevent many lamentable failures. He owned to being a great enemy to the application of new plaster to old walls. It was, in his opinion, better to preserve a wall in a rude and crude state, than to cover it over with an abominable coat of plaster. He did not believe that church walls were ever plastered in ancient times, except in cases where they were intended to be painted. The rough wall, carefully repaired and pointed was far better than a coat of plaster. Again, in the course of restoration, we often found ancient fragments for which it was impossible to find a use. In such cases he thought it was desirable to form a small museum for the preservation of them. A case might be constructed somewhere in the church, in which they could be reverentially preserved. Another subject to which he wished to refer was the abstraction by architects of curious fragments from church buildings. In his opinion, they had no right whatever to take them away; and the proper course to adopt was to leave them in the building. It should also be remembered that, for the effectual and satisfactory restoration of works, it was necessary that the architect should study old buildings in the same neighbourhood by the same workmen. This, he was aware, required time; but then it should be remembered that the architect must always be a student, and that, wherever he found any similarity between ancient buildings, he ought to take a note of it. This, of course, should be done when the architect was young; for one of the reasons why there were so many inferior restorations was, that the majority of young architects did not devote as much time as they ought to the study of the architecture of their own country.

Mr. Hayward said that by a peculiar accident, instead of being landed last autumn in America, he found himself in Ireland, and that having made his way to Dublin, he proceeded to make himself acquainted with the noblest and most interesting buildings in that metropolis. He went, of course, to the cathedral of St. Patrick, and found it in the hands of restorers; that was, of builders and masons. He inquired who had charge of the works, but he could not ascertain that any one had charge but the builder. He had found a person who was called the clerk of the works, and he had also spoken to the builder, but he was unable to find out any person under whose control the works were carried on. It might, perhaps, appear at first sight improper that any one should interfere in so noble and generous a work as that which was now going on at the cathedral, but he hoped that the proposed committee would inquire by what means or upon what authority, in an architectural sense, the present works of restoration were being carried out. He had been given to understand that one gentleman in Dublin was at the sole expense of the restoration; but it depended upon the manner in which they were done whether architects would henceforward have reason to be grateful to Mr. Guinness for his generosity. The Cathedral of St. Patrick presented a curious example, as one side of the church differed from another. The restoration of the choir was carried out some years ago in a very unsatisfactory manner; and now that the whole body of the church was about to be submitted to the "restoring" process, it was very desirable that some one should be responsible for the manner in which the work was done, He presumed that the dean had something to do with it, but he regretted that the name of no architect was forthcoming. With regard to the suggestions made in the paper, he considered that they were very valuable. A suggestion had also occurred to him (Mr. Hayward) which he thought it right to mention. Passing through Essex a short time ago, he was attracted

to a little Norman chapel, where he found some masons at work. He got into conversation with the churchwarden, and from him he learned that no architect had been consulted with reference to the building. The churchwarden subsequently sent him word that some old paintings had been discovered in the church. He forthwith repaired to the place, traced the paintings, and endeavoured to interest the gentlemen in the neighbourhood in their preservation. In this, however, he was unsuccessful. Eventually, the churchwarden informed him that the walls had been all plastered over; and when he (Mr. Hayward) grumbled at the iconoclism, he was told that some boards had been put over the paintings, that they were plastered over, and that whenever he (Mr. Hayward) wished to bring an Archæological Society to look at them, all that would have to be done would be to knock down the boards. This, however, was better than total destruction; and he confessed he was himself disposed to adopt the churchwarden's precaution, rather than submit to the annihilation of such ancient remains.

Mr. Giles ventured to express a hope that the proposed committee would be appointed. Speaking of his own experience, he might say that some years since he found himself commencing life in a country district of great interest. The only knowledge he possessed was that he was aware of his own ignorance; but the first thing he did was to establish an archæological society. The society itself flourished; but he found that he could not bring its interest to bear on the present subject mainly from the want of some central court of appeal. Throughout the length and breadth of his own district (Somersetshire) he was perfectly amazed at the destruction that was going on in ancient buildings, and the difficulty which he had himself experienced in saving a bit of old wall, of pointing the interior of an old wall instead of plastering it, was greater than he could well describe. He invariably found that everybody was in favour of new work and new plaster, and that there was a general disinclination to preserve what was bequeathed to us by our ancestors.

Mr. Godwin said he regretted that the remarks Mr. Street had made, supporting Mr. Scott's motion, were equivalent to the abandonment of the idea of endeavouring to interest the Government in the subject; for he felt persuaded that all that was wished could not be done without something of that sort. The last speaker had shown how the Somersetshire Archæological Society had failed in its attempt to preserve the monuments of the district: other societies had failed; and it was quite possible that the Institute might also fail. There was an archæological society in nearly every county in England; and the Society of Antiquaries, moved by Mr. Ruskin, had already made some attempts in the direction to which we were aiming, but nothing absolutely good had been done in the matter. He (Mr. Godwin) believed that good would follow from appointing a committee, but that more might be accomplished by an appeal to the Government. On the last occasion when the matter was discussed, he had referred to the endeavours made by Mr. Britton and others, in the year 1840, to originate some such movement as that now projected. As a very young man, he had worked with Mr. Britton, who, among other efforts, had addressed a letter to the late Mr. Hume, the political economist, showing the damage which had been done to our ancient monuments in various parts of the country, notwithstanding the better spirit that was springing up. Mr. Britton gave a list of some buildings needing care, and ultimately induced Mr. Hume to obtain a committee of inquiry of the House of Commons. The committee sat and took evidence, and published a blue-book, which in due course was buried, and nothing further came of the matter. In the year 1845, Mr. Wyse submitted a motion for the formation of a museum of national antiquities, and a commission for the preservation of the national monuments; but the motion failed, although every one admitted the necessity that existed for some such commission. That necessity was not lessened by the local efforts which had been made from time to time; and, therefore, it seemed to him, now that Government was more awake to the importance of the subject,—when members of the House of Commons no longer laughed at art questions,—and when reporters no longer closed their note-books when art was mooted,—the time had arrived when a fresh appeal might not be made in vain. A different feeling was now abroad, and he thought there would be no difficulty in inducing government to obtain information with reference—for example—to the state of the buildings and monuments in the hands of the Department of Public Works. In Scotland, for instance, there were many such buildings, including the ancient palaces of royalty; and he believed that, if they could get categorical replies to certain questions in reference to the state of those structures, they would have a body of facts to begin with. He did not see why, because an abuse might be possible in connexion with the proposed appeal, that they should set their face against doing a large amount of good; and, therefore, he was in favour of moving the Government. Having referred to the exertions of his lamented friend, Mr. Britton, he might be permitted to add that they were deeply indebted to him, and he regretted that his name appeared to have died away, although but a few years had elapsed since he was among them. When they looked to the works he had published, to the appeals which he had made, and to his extraordinary exertions at an early period in the cause of their art, they could form an estimate of how much the present state of knowledge had been advanced by the efforts which he had made, and which included his persistent endavours to interest the Government in the preservation of ancient monuments.

Mr. Scott said he saw the benefit as well as the danger of Mr. Godwin's suggestion; but that in his opinion both were fair subjects for the consideration of the committee, who could best judge in what manner the attention of the Government could be called to the subject. As far as the buildings at present in Government care were concerned, there could be no doubt whatever as to the propriety of representations.

Mr. Papworth inquired whether the action of the proposed committee was to be confined to England only, and, if not, how far it was to be extended?

The Chairman said there was no limitation in the wording of the motion, but that it was competent to any member to move an addition to the resolution if he pleased.

Mr. Scott remarked that he really had not thought of the point to which Mr. Papworth had called attention; but he was of opinion that they should begin at home, and finish, before they meddled with other countries. If, however, any great works of demolition were going on—in France, for instance—it might be desirable to make a special representation.

Mr. Papworth, having put other questions with respect to the constitution of the committee, stated at some length the objections which he entertained to it. He believed that the institution of a court of appeal which might sit in judgment upon the work of fellow architects would be a very ill-advised proceeding, and be attended with many difficulties and great inconveniences. He apprehended, also, that a committee sitting *en permanance* would require a secretary, and possibly an assistant-secretary. Such a machinery would entail considerable expense; and he, for one, objected to the funds of the Institute being devoted to such a purpose. He thought that if the committee were to draw up and circulate suggestions only, they would be doing as much as could be expected of them, without exposing the shortcomings of others. He strongly objected to a code of rules, or to rules at all, because the committee would have no power of enforcing them. He also objected to a standing committee, on the ground that such tribunals were generally irresponsible. Mr. Papworth concluded by moving certain verbal amendments to the original motion, in order to carry out his view.

Mr. Jennings was also opposed to the appointment of a "standing" committee, although he thought it very desirable that a committee should be appointed to consider what steps should be taken in connection with the preservation of ancient buildings generally. He was of opinion that such a committee might, by judicious suggestions, effect a great deal of good in the general matter of restoration when repairs were going on. He thought it not improbable that in the course of the ensuing session a bill would be brought in on the subject of ecclesiastical dilapidations. He admitted that it was difficult to provide against the tyranny of governments and of corporations acting upon architects. At present the exertions of the clergy throughout the country were very beneficial in the restoration of parish churches, and in his opinion they were more useful than any other body of men. It would therefore be desirable to communicate with them, and to induce them to communicate with the proposed committee. They might also communicate with the owners of ruins, who, in many cases, might be induced, by proper representations, to take means for their preservation. For his own part, he would have preferred a committee of the Council if it were more permanent; but perhaps the better course would be for the council to appoint a committee every year. If the committee was composed of good working men, they would, of course, be re-appointed; if not, changes could be made without giving offence.

Mr. Godwin, with every desire that a committee should be appointed, showed that if the resolution was passed as it stood the whole power of the Institute would be given to the committee (the members of it being then unknown); and urged the necessity of an alteration in the words.

Mr. Kerr said that there was no precedent for the appointment of such a committee. The Council could appoint a committee for the investigation of a certain subject, but it had no power to appoint a committee of this nature. After the very sensible remarks which had fallen from Mr. Papworth, he confessed he was jealous of the action of a committee in its legislative character. Any suggestion emanating from the Council would no doubt receive attention; but it was a different thing to set up that which some persons might call, but which he did not call, an inquisitorial committee to sit upon the works of their architects. Without in the least degree wishing to detract from the scheme proposed, he certainly invited the meeting to pause before it appointed a committee to lay down rules and regulations.

The Chairman thought the Institute might be more useful in an affiliated condition than as the nucleus of other affiliations. He thought, in fact, that they would do better as planets than as suns, if they could induce other societies to move in the matter. He reminded the meeting that the Cambridge Camden Society had already drawn up admirable rules on the subject, and that the proposed committee, in all probability, would not be able to devise anything better. What was really wanted were watchfulness and the development of that local spirit of conservatism which he was happy to say was now being rapidly recognized.

Mr. Scott said the evils of which he complained were taking place at this moment, in spite of the Camden Society, and if not stopped would be carried on until our ancient churches had lost all their value. He reminded the meeting that the Institute was the only Society in the country which represented architecture in a legal and formal way.

Mr. Papworth then moved an amendment to the effect that a committee be appointed to draw up a series of practical suggestions for the treatment of ancient buildings requiring reparation, and that the committee report their recommendations to a general meeting for confirmation.

After some discussion the amendment was seconded by Mr. Horace Jones, put from the chair, and negatived.

Mr. Kerr then moved another amendment, to the effect that the council be requested to appoint a committee to investigate the subject of the conservation of ancient buildings, and to recommend to the council from time to time any measures which the said committee might deem desirable.

Mr. Porter seconded the amendment: on a division it was lost by two.

Some discussion ensued with reference to one or two suggestions of verbal emendations, and ultimately. these being made, the original resolution was put, and carried unanimously, in the following form:—

"That the council be requested to nominate a committee to draw up a series of practical rules and suggestions for the treatment of buildings requiring reparation, and to put themselves in communication with other architectural and antiquarian societies with a view to obtaining their co-operation in considering such measures as their united wisdom might suggest for the promotion of the faithful and authentic conservation of ancient monuments and remains, and to report on the same to this Institute."

Mr. Harry Oliver, Associate, of 7, Bedford-row; Mr. John Robinson Botham, of Birmingham; and Mr. George Knowles, of Leeds-road, Bradford, Yorkshire, were on ballot elected fellows of the Institute.

BIRKENHEAD CEMETERY COMPETITION.

AT their last meeting, it was stated that the Cemetery Committee had received a tender from Mr. Hugh Yates, of Liverpool, offering to erect the chapels and other buildings, according to the plans of Messrs. Lucy & Littler, at the sums named by the committee in advertising for plans. The committee have awarded the first premium for designs sent in to Messrs. Lucy & Littler, and the second to Mr. Reed, and have appointed Messrs. Lucy & Littler architects to carry out their own plans.

CHIMNEY-TOPS.

SMOKY CHIMNEYS.

I FEEL sure that, if our chimney doctors would but take a lesson or two from the contrivances in use over the Channel, such as these selected at random from a host of which not two are alike, the object of all being to direct the wind upwards, we should hear less of down-draughts, and should gain infinitely in picturesqueness. In superior work the upper part of the shafts might be constructed with stone louvres on every side. I can speak with experience that this simple plan has cured several chimneys that used to smoke in high winds, and which now draw even better then than in calm weather. J. S.

BRUSSELS "PALAIS DE JUSTICE" COMPETITION.

THE Belgian Government selected designs from those sent in competition, by a Brussels architect, an Antwerp architect, and an English firm, Messrs. Green & De Ville; but, in lieu of presenting the premiums offered, have awarded greatly reduced sums. Endeavours are being made, we believe, through the Royal Institute of British Architects, to induce the Belgian Government to reconsider this very shabby and unjust proceeding.

INN LIBRARIES FOR SNOWED-UP TRAVELLLERS.

MANY wandering architects, and other studious artist-travellers, whose pursuits lead them into out of the way places, have had the painful experience of being "snowed-up," or from stress of weather imprisoned, in some comfortless hostlery, without intellectual fellowship; their view confined to some neighbouring hedge or barn-like buildings; and, what is almost worse than this, without a single readable book or newspaper of recent date. We know few greater miseries than to be placed in this kind of imprisonment. In many places the solace of two or three volumes wherewith to while away a few hours is now to be had where such things were not thought of a dozen years ago; but numerous districts are still benighted; and it is a circumstance worthy of note, that in those neighbourhoods in which the fewest books are to be found the demand seems to be greatest for all manner of quack medicines; and the spare walls, and gate-posts, are gay with the announcements of the wonderful virtues of pills and such-like nostrums. Other results of a want of general knowledge might also be noticed. It is, however, in inns of greater pretensions than those to which we have alluded, that the want of a small but well-selected library is often experienced; and, both in England and Scotland, in large hotels, fitted with almost every other luxury, we have found that a reading-room or library, which should be a necessity in all such establishments, was completely overlooked.

In a famous hotel in Edinburgh every apartment is provided with a copy of the Sacred Scriptures; the gift, we believe, of a well-intentioned visitor. This is very commendable; and a great deal of good might be done if travellers to such neighbourhoods as the Valley of the Wye were to leave, at some of the places of their sojourn which are most ill-provided in this respect, the cheap railway-book they may have in their carpet-bag.

In many large towns much visited by passing tourists, persons may ask in vain, in some of the best inns, for the standard books of the topography, &c., of the neighbourhood. This is a great want to many, who might be led by such publications to feel much additional interest in the locality.

In places like Manchester, Birmingham, Newcastle-on-Tyne, and other towns, in which there are literary or mechanics' institutes, we have always been provided with information, and had ready access to books; and this we believe is willingly given to such strangers as can show any useful purpose. Some, however, are unwilling to ask a favour of even this description; and it has struck us that it would be useful and of mutual benefit, if it were understood generally throughout the kingdom, that the presentation of the admission-card of any member of a recognised institute, at a similar establishment in towns through which he was passing, or in which he was temporarily staying, should be the means of obtaining him (as a sort of acknowledged right) access to such sources of information as he might require.

BREAD FROM GERMINATING WHEAT.

PROFESSOR NICKELS has recently directed the attention of the Agricultural Society of Nancy, France, to a very simple process of treating germinating wheat, so as to make it fit for use in bread. On account of the heavy rains in many parts of France last autumn, the harvest was gathered in a damp state, and much of the wheat germinated, so as to be unfit for food. This serious evil attracted the attention of Mr. Nickels, who immediately made experiments to ascertain some cheap and efficient method of removing it; and he succeeded in obtaining very satisfactory results, simply by the use of salt. The two principal ingredients of wheat are starch and gluten, both of which are insoluble in water, but become soluble after germination. Thus the starch becomes dextrine; the gluten loses that elasticity necessary to make good dough; and the bread made from it is heavy, indigestible, and injurious to health. By the addition of salt, however, the gluten is restored to its natural state of insolubility, and is rendered fit for making good bread. Mr. Nickels ascertained that about 4 oz. of salt, mixed with 13 lbs. of flour from germinated wheat, yield about 17 lbs. of excellent bread. About 2 lbs. of salt, worth 1½d., will be sufficient for 110 lbs. of flour, producing about 143 lbs. of bread.

A PARTING SONG.

A QUAINT old mansion—
Long ago,
They reared its crested roofs;
And men who climbed to fix the vane
That glows in sunshine, and in rain
And wind creaks wearily,
And sighs drearily,
Lie low, lie low.

We do not sigh for them:
We know
Tower and chamber all are proofs
How earnestly they wrought; that heart
Guided the hand in every part.
Of work pleasure
Was a measure
By which to go.

Years since
Were ringing hammers heard,
And planks of oak were side by side
Fashioned to floorings firm and wide,
Where for men cheerfully,
And anon tearfully,
The lots were cast.

But long they all have left:
We find
'Tis void and out of date;
Nor men, nor children, thrive nor smile
Within the sombre shadowy pile.
A day or two
Will leave nor clue
Nor trace of it behind.

And they will pull it down
We know:
Sleeper and iron rail well set
In placid curve, will sweep above
The site of the old place we love.
Shall this beget
In us regret?
Not so—not so.

The wondrous legends told
Of it
Will be forgotten; but below
The shifted rocks will tell a tale
In every shell, that shall not fail
For interest ever,
And lack never,
A worthier song.

Rejoice! for plenty and great peace
To-day
Draw nearer, as we onward go,
The burden of our longings past and here.
Therefore we spare the carven mansion dear;
And shall say tearfully,
But withal cheerfully,
'Tis pass'd away." J. S. B.

THE LEWIS.

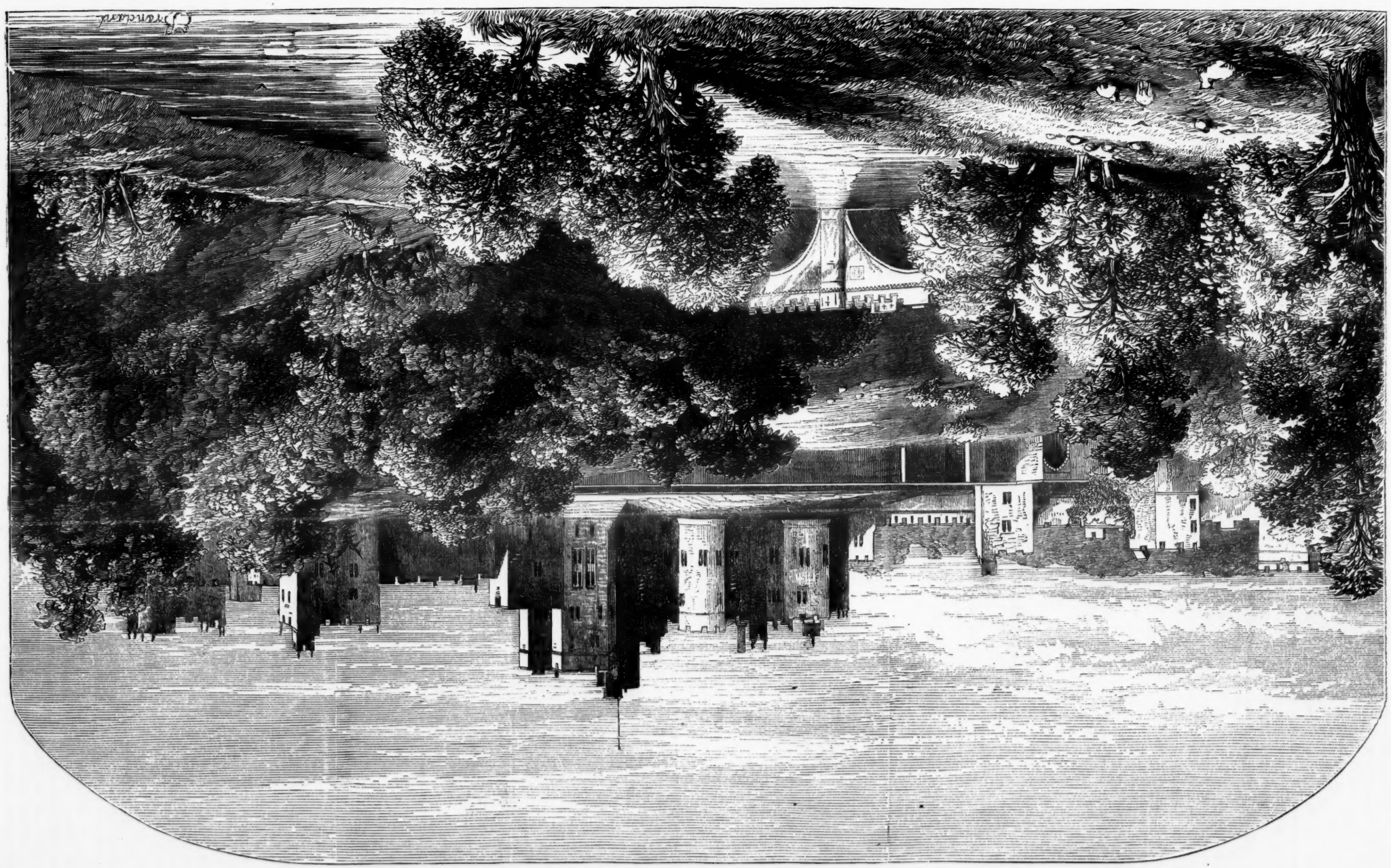
WITH reference to the remarks in a recent number upon the antiquity of the Lewis, a correspondent bears out our impression by pointing attention to a note in Newton's "Vitruvius," chap. ii., book 10:—"Piranesi, in the third volume of his 'Antichita Romana,' asserts that he found in some of the ancient buildings stones that had holes cut in their upper surfaces in such a form as to suit the dove-tail shape of the modern Lewis."

INSTITUTION OF CIVIL ENGINEERS.

ON January 28th; Mr. Hawkshaw, President, in the chair; the paper read was "On the Form and Materials for Iron-plated Ships, and the Points requiring Attention in their Construction," by Mr. Joseph D'A. Samuda.

The author stated that, iron-plated ships having now become a necessity, it was important to ascertain, first, the best description of construction of ship and armour; and secondly, the best form and dimensions of vessel. He thought that the time had arrived, when the Admiralty should see the propriety and the advantage to the public service of abandoning the monopoly of restricting all advance in the construction of mail-clad vessels to plans and systems emanating from themselves; and that it would be far better to trust to the engineering skill of this country, leaving it free to take the initiative in improving this branch of national defence, and the Admiralty only exercising a veto within such limits as experience fitted them to form a judgment upon.

ALNWICK CASTLE; NORTHUMBERLAND.*



[* See p. 89, *ante*.

ON RECENTLY-EXECUTED DEEP WELLS AND BORINGS.

AT the Society of Arts, on the 29th ult., Mr. G. R. Burnell read a paper on this subject. It had especial reference to the doubtful success of artesian wells excepting under particular circumstances. In the course of it he said:—One of the earliest of the attempts made in England at sinking an artesian well to the lower green sand was the one made, almost unintentionally, by the town of Southampton. It was commenced by a preliminary boring through the London clay to the chalk, which was reached at a depth of 480 feet from the surface; the upper strata traversed consisting of the sands, clays, and plastic mottled clays of the Hampshire tertiary series. It seems that the well-borer employed carried the boring to a depth of 50 feet beyond the surface of the chalk already mentioned; and he then reported that an ample supply of water was to be obtained from that formation. A shaft was sunk, on faith of this report, commencing with a cast-iron lining of 13 feet diameter, which it was proposed to carry to a depth of 160 feet, and then to commence boring with a hole of 30 inches diameter, diminishing gradually to 20 inches in the chalk. The cylinders used were, however, found to be too weak for the purpose they were intended to fulfil: they collapsed in places; and, in driving, they assumed a direction seriously out of the perpendicular. The contractor failed when the cylinders had been thus badly lowered to the depth of about 60 feet, and the works were then taken out of his hands, and placed in those of Mr. Docwra, one of the most able well-sinkers and water-works contractors of our country and of our day. With great trouble he drove the shaft completely down to the chalk, finishing it with a clear external diameter of 9 feet 4 inches. Part of it was lined with cast-iron plates, and part of it with brickwork in cement. The brickwork lining was carried 3 feet into the chalk, and below it the shaft was continued to the total depth of 562½ feet from the surface, in the solid chalk, without any lining, and with a clear diameter of about 7 feet: a boring was then commenced of 7½ inches diameter, and was carried down eventually to a total depth of 1,317 feet from the surface. The chalk formation was found here to have a thickness of 851 feet, and the works were suspended when the boring had traversed only 12 feet of the chalk marl. Now at Chichester, where Mr. Gatehouse had also sunk a deep well to the upper green sand about the same period, the thickness of the chalk marl was found to be 61 feet: the upper green sand and gault are of variable thicknesses, but the greatest depth recorded for them was that of the new well at Passy, where they were about 274 feet deep. It is, therefore, very probable, that if the Southampton well had been carried down 330 feet further, or to a total depth of 1,650 feet in round numbers, the problem as to the possibility of finding water from the lower green sand, in the Hampshire basin, might have been solved. In the well at Chichester this solution could be even more easily attained; for the boring had actually been carried about 130 feet nearer to the probable surface of the lower green sand; leaving only 200 feet still to be traversed.

It would be impossible to record all the important works undertaken of late years for obtaining water by means of artesian wells; but the circumstances connected with the history of those attempted at Calais, Kentish-town, and Harwich, are so singular, that it behoves us to dwell upon them. At Calais the well was sunk through the chalk and the whole series of the subcretaceous strata, to a total depth of 1,047 feet from the surface; but no water was obtained from it; and the boring passed, at the depth above-named, into the transition rocks, in which it was carried for a further depth of 103 feet. At Kentish-town, the Hampstead Waterworks Company endeavoured to secure an artesian supply, in order to comply with the provisions of the Metropolis Waterworks Act of 1851. They had very wisely consulted Mr. Prestwich upon the geological questions involved in the preliminary inquiries; and they employed Messrs. Degoussé & Laurent, the best known and the most successful well-borers up to that period, on the Continent. Geologists and practical men alike in this instance reasoned that, because the lower green sand outcropped around the edges of the chalk basin containing the London tertiaries, in precisely the same manner that the lower green sand outcropped around the chalk basin containing the Paris tertiaries; therefore, there was every *à priori* reason to believe that the subcretaceous formations would continue under London; and furnish, as had been the case at Paris, the water for a well carried down to them. Acting upon this belief, the company commenced boring in the chalk, at the bottom of a shaft previously sunk to the depth of 539 feet from the surface. The boring was commenced with a diameter of 12 inches, reduced to 10 inches in the intermediate part, and finishing with a diameter of 8 inches. The work began on the 10th of June, 1853, and was carried on with every appearance of success for a considerable time. The strata traversed were found to occur in their regular order, and of the anticipated thicknesses, until the boring had traversed the gault formation at the depth of 1,113 feet 6 inches from the surface; but when, as Mr. Prestwich said, everybody believed, that "a very few more turns of the augur would tap the water-bearing sands of the lower green sand formation," it was found that the borings passed at once into a series of beds consisting of alternate layers of red sandstones, red clays, conglomerates, red sands, and rounded pebbles, which geologists are now disposed to class amongst the new red sandstone series. It is very difficult to form any decided opinion as to the real nature of a deposit which has only been explored by the boring tool, especially when the diameter of the bore was only 8 inches, as at Kentish-town; and I confess that for my own part, as I said before in this room and shall have occasion again to repeat, I am disposed to regard the beds of red clays and sandstones rather as being members of the Wealden series than of the new red sandstone. But in either case it was evident that the water-bearing strata were interrupted under London, and that there was no probability of obtaining a supply of any description from them in that district. In fact, the Hampstead Waterworks Company, after the failure of this attempt, were compelled to sell their interests to the New River Company, and the well was stopped at the depth above quoted, added to the depth traversed in red sandstones and clay, or at a total depth from the surface of 1,302 feet.

About the same time that this unexpected result was obtained at Kentish Town, Mr. P. Bruff, C.E., was employed upon an attempt to obtain water for the town of Harwich, either by a deep well in the chalk, or by traversing, if necessary, the strata below the chalk. Several attempts appear to have been previously made at Harwich to obtain a supply from the chalk, but they had failed, in consequence of the infiltration of salt water into the wells sunk close to the sea-shore. Mr. Lankaster Webb, of Stowmarket, a town situate upon the high lands of the valley of the Gipping, the main affluent of the Orwell, had executed a well 895 feet deep through the drift clays and gravels over the chalk, the cretaceous formation, and the upper green sands and gault. I do not know the level of the ground at Mr. Webb's factory; but, as a rough guess, I should say that it was about 240 feet above the high-tide level at Harwich; and I am not, therefore, surprised that the persons connected with the well at the latter town should have expected that upon traversing the chalk they would meet with a supply of water under the true artesian conditions. It happened, however, that, after the Harwich boring had passed through the drift, the tertiary strata, the chalk, the upper green sand, and the gault, to the depth of 1,025¼ feet from the surface; it passed, not into the lower green sand, but into a black slaty rock, which Mr. Prestwich pronounced to be a common grey slate of the palæozoic series, whose precise position in the series could, however, hardly be defined on account of the absence of fossils. Thus, at Calais, and, I believe, also at Ostend, the lower green sand is wanting, and is replaced by a member of the carboniferous series: at Kentish Town the lower green sand is absent; and it is replaced, perhaps, by the new red sandstone beds; whilst at Harwich the lower green sand is replaced by the very earliest clay-slate rocks.

Now there may be drawn from these unexpected results of the deep borings in the tertiaries of what may be specially named the London basin some valuable scientific and practical conclusions. These may be briefly stated as follows:—1st. That, at present, geology is only so far advanced as to enable us to state with tolerable certainty what we shall *not* find under the surface, but by no means to justify any positive assertion as to what we *shall* find; thus, knowing that the London clay is on the surface, we may be certain that the crag will not be found beneath it; but it by no means follows that necessarily the chalk, the lower green sands, the oolites, or the usually subordinate strata, should be there. 2nd. That the first attempt to sink an artesian well through a previously untried stratum is at all times a hazardous experiment; and that it is, therefore, one which should never be tried by those who only work with the money raised by forced taxation. It was upon the latter ground that Mr. Ranger very properly recommended the town of Southampton to stop the philosophical experiment upon which they had already incurred so large an outlay; and it is certainly wiser to leave the solution of these problems to municipalities possessed of private resources, or to private enterprize, than to expend upon them the money wrung from the ratepayers. 3rd. And, possibly, this may be the most important conclusion of all: it would appear to be proved by the occurrence of the earlier strata in the geological series at Calais, Kentish-town, Harwich, and if I be not mistaken, at Ostend also, that Mr. Godwin Austin's theory of an upheaval of the carboniferous series existing between its extremity on the French coast and its reappearance in the Bristol and South Wales coal-field is correct. A full discussion of this important inquiry would be misplaced in this paper; but I cannot refrain from repeating what I myself have said before; viz. that, from all that is at present known, it would be more rational to seek for coal under London than for soft water. At the same time I would carefully guard myself against any appearance of encouraging an attempt of the former description, unless it were distinctly undertaken as a speculation, with great, nay, almost infallible, chances of loss.

MEMORIALS OF THE PRINCE CONSORT.

WHILE district meetings, as at Chelsea, &c., are being held in the metropolis for the promotion of the movement in favour of a central and national monument to the Prince, the same object is being carried out in the large towns, and in many of even the smaller ones. At Harrogate the feeling is very divided, as to whether the inhabitants should contribute to the national monument, or should erect a local one; and a meeting on the subject is to be held shortly for the express purpose of deciding this question. It is urged that, for 100*l.*, an obelisk, or some other form of a local memorial, could be erected; whereas all that could be realized towards the metropolitan monument would be but as a drop in the bucket. At Dover it has been resolved to have a local memorial. At Gloucester the City Council have been considering whether the inhabitants should be called upon to subscribe to the national monument or to a local one. Some of the councillors approved of both, and a subscription-list was at once opened in aid of the central monument. A committee, however, has been appointed to consider the subject, and the county is to be invited to join in the movement. At Worcester a proposal has been made to realize funds for Albert Colleges, or an Albert Institute. At Liverpool the subject of a memorial has been before the Council, who, though in favour of a local monument, are opposed to the subscriptions being sent to London. A committee has been appointed to take charge of the matter; and it is considered probable that a resolution passed several years since to erect statues of her Majesty and the Prince, at St. George's Hall, will be now carried into effect. The council, at their last meeting, indeed, agreed to set apart the sum of 5,000*l.* from the burgh fund, to be appropriated to the erection of an equestrian statue of the Prince, to be placed in the area on the east side of St. George's Hall. Mr. Jackson, M.P., has offered to erect, at his own expense, a memorial statue of the Prince in the Birkenhead Park. At Birmingham the working men have had a meeting, and appointed a committee to aid in the local movement. It was highly gratifying to witness the warm feeling in favour of the object in view with which the working men addressed their fellows; and all appeared to feel as if in the Prince's death they had lost a personal friend. While the general committee at Manchester have agreed not to arrive at any decision as to the precise form the local monument shall assume till they see how much is collected, the mayor is endeavouring, in a truly liberal and forcible way, to influence the decision, by offering, instead of the 500*l.* towards a statue which he had already promised, to provide a statue itself, in Carrara marble, should the committee be disposed to erect, out of the funds subscribed, a suitable building for its reception and preservation. The committee meantime have agreed to hold a special meeting to appoint a sub-committee to consider and report on the best plan of dealing with the surplus subscriptions after the erection of a statue. The movement in favour of a Scottish memorial at Edinburgh is still proceeding actively with the object in view. At Glasgow

the Lord Provost has been canvassing for subscriptions towards a local monument, and so far his proposal met with liberal support. A highly influential meeting was then held in the council chambers, to adopt measures for the erection of a memorial. The Lord Provost occupied the chair, and moved a resolution in favour of the promotion of a local memorial. Sir Archibald Alison seconded the resolution; and in the course of his speech said that he had heard members both of the former and the present cabinet say that there were not three men in Europe of abilities equal to those of the Prince Consort. The resolution was unanimously agreed to, and a committee to carry out the object was appointed. A list of subscriptions was then read, which showed that 2,700*l.* had already been subscribed. At a county meeting in Aberdeen a local memorial has been resolved on, and a committee appointed.

The death of the Prince Consort, we may here add, is to be the subject of a prize poem, for which the new chancellor of the University of Cambridge offers a gold medal as the prize.

SOCIETY OF FEMALE ARTISTS.

THE sixth exhibition of lady-artists now open at the gallery of the New Water-Colour Society, Pall-mall, consists of 284 works, the last number, not in the catalogue, being a clever pen-and-ink sepia drawing by Mrs. Boyle. The collection is more even in merit than has sometimes been the case. Miss Louisa Rayner occupies a place of honour worthily with a large and forcible view of the Interior of Rosslyn Chapel. The same lady has some other good architectural works. Miss Kate Swift and Miss G. Swift are two of the most important exhibitors, and show progress. 61, "Fountain of the Virgin Mary, Nazareth," by Mrs. Roberton Blaine; 62, "Rydal Water," Mrs. Oliver; 65, "Study of Colour," Florence Peel; 68, "The Absent Scholar," Mademoiselle Sophie Jobert; 106, "The Loch of Lowes," Mrs. J. W. Brown; 173, "Waiting for a Customer," Mrs. Backhouse; 183, "Resting at the well," Mrs. Paul Naftel; 238, "The Little Coquette," Angélique Razè (a new and promising young member), are conspicuous in the collection. Mrs. Valentine, Bartholomew, Mrs. Dundas Murray, Lady Belcher, Miss Lucy Archer, Mrs. Withers, Miss Weigall, Miss Pocock, and Mrs. Thorneycroft, are also amongst the exhibitors.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 31st ult), at the House in Conduit-street.

The chair was taken by the president, Mr. Blomfield.

Mr. Arthur Smith (Hon. Sec.), stated that about forty members of the Association had availed themselves of the invitation of the contractors to visit the works of the Underground Railway on the previous Saturday, and had been much interested by the inspection.

Mr. A. Church then read a paper on the preservation of stone.

At the conclusion,

The Chairman inquired whether the saline atmosphere was found to be detrimental to freestone or soft stone.

Mr. Church replied that, curious though it might appear, it was a fact that there was no place in the interior of the country to which seaside spray was not carried, and which did not affect more or less the stone used for building purposes.

Mr. Trotman, of the firm of Bartlett, Brothers, of Camden-town, described the difference between the process of preserving stone as carried out by those gentlemen, and that known as "Ransome's process." In the latter process there were two solutions—the first the agent, and the second the re-agent,—the first soluble, the second intended to be insoluble. In the process as applied by Bartlett, Brothers, the solutions were applied together, and as one. Potash was also used, to a certain extent free, and to a certain extent in combination.

Mr. R. T. Smith observed that there were two descriptions of induration likely to be brought under the notice of architects,—one, that in which decay of long standing had set in, and the other that description of local decay caused by the stone being in an exposed situation. He was afraid they were bound to arrive at the conclusion that no process had yet been sufficiently tested by time to inspire perfect confidence. He would be glad to know from Mr. Church what description of stone was in his opinion best calculated to resist the London atmosphere.

Mr. Church said that he thought Portland stone, when well selected, was the best. The better descriptions of magnesia limestone and dolamite were also well calculated to resist the peculiar atmosphere of the metropolis.

Mr. T. R. Smith considered that we made a mistake by using the soft Bath stone so much for public buildings. Other stones might be procured, from Yorkshire, for instance, at a very little increase of expense.

The Chairman said that he had often wished to use other stone, but that he was compelled to use Bath stone because it was so much cheaper than others.

After some further discussion,

Mr. Spiers moved a vote of thanks to Mr. Church for his paper, which was put and carried *nem. con.*

The Chairman announced that at the next meeting Mr. Herring would read a paper on the non-desirability of substituting colour for form.

The following gentlemen were, on ballot, elected members of the Association:—Mr. J. Johnson, 10, Clift-street; and Mr. North, Radnor-street, Chelsea.

THE ROYAL ENGINEER DEPARTMENT.

MILITARY BUILDERS.

WE have received two or three elaborate letters reiterating the objections taken to the present constitution of the Royal Engineer Department, and the arguments to show the injustice suffered by the civil officers,—the so-called clerks of the works. Our readers are all tolerably well acquainted with this view of the case, and we do not find it necessary to print the statements. Official inquiry is going on, and it may be expected that some alteration will be made. The men who do the work ought to have the responsibility and the credit.

One of our correspondents, commenting on the proposition that the work should be wholly done by soldiers, thus writes:—

"It must not be supposed that the sappers, when they enlist, are the best tradesmen as bricklayers, carpenters, &c.; and even were they the best, the military organization of the rank-and-file unfits them for working at their trades. The military parades and multifarious duties of a soldier, which must first be attended to, distract their attention, deteriorate their mechanical skill, and destroy all their interest in the handicraft of artificers' work. Their remuneration, 1s. 1d. per diem working pay,—their military pay being the equivalent for military duties and its restraints,—is no inducement for them to labour; and even if they were better paid, their first object, after making up their minds to become good hardworking mechanics, would be to purchase their discharge from the army. These men will neglect and forget their duties as soldiers, or as working tradesmen: they cannot attend to both in a proper manner.

Labour is but a small percentage in house-building. The sapper soldier has no interest in economizing the costly material he uses: the public, even at 1s. 1d. per diem, pay him the full value of his work, and great losses may accrue from an unnecessary waste of material. Our great building firms need feel no uneasiness on account of the Royal Engineers entering the field of competition as 'builders.' Imagine this military corps—officers and men—undertaking without civilian aid to build a large barrack like that for the Guards at Chelsea. What inferior design and workmanship! Who could calculate its cost? and would the building be completed before 'Lord Macaulay's New Zealander arrives to view the ruins of our mighty modern Babylon after the decline and fall of the British empire?'

Should the War Minister decide to make civilians of the engineer officers, no obstacle is likely to be thrown in the way by the parties doomed. The clerks would rejoice in the 'good time coming;' and the clerks of works, next to being placed in a proper position, in their own department, would welcome emancipation on almost any terms.

One thing is certain: the reform of the department cannot be long delayed. The adoption of the scheme suggested in the January number of *Colburn's Magazine*, is not probable. It is understood that Lord Panmure's idea, when in office, was to call to his aid an architect of position, and place him in the War Office, as the 'Architect-in-Chief' for barrack works. A 'Surveyor-General' should be associated with him, and suitable deputies appointed, to perform the principal professional work of design, &c., in the London office, and to make frequent inspections throughout the country; the existing civil staff being placed in local charge, to carry out the works at the out-stations, under the central authority in London."

BRITISH ARCHÆOLOGICAL ASSOCIATION.

ON January 22; Mr. T. J. Pettigrew, F.R.S., in the chair; Mr. Moore forwarded particulars relating to the discovery of a Roman villa, in a field called Chessells, West Coker, Somersetshire: at the depth of 2 feet, was a kind of rude stone pavement, on which and in the joints between, various articles were found. The villa seems to have been destroyed by fire, and the spot rifled, but there were numerous tesseræ, bones, horns, and portions of plastered walls, coloured. In reference to the discovery of a leaden coffin, at Worcester Cathedral, announced at the previous meeting, Mr. Cuming mentioned other instances in which coffins had been found of human form. These were of James IV. of Scotland, buried at the monastery of Sheen in 1513; of Mary Countess of Arundel, in the chapel formerly belonging to the College of the Holy Trinity, at Arundel, in 1557; of Henry Prince of Wales, in a vault on the north side of Henry VII.'s Chapel, at Westminster, in 1612; and of Thomas Sutton, the founder of the Charter House, who died in 1611. This example is very singular; for on its upper part is a mask, with a square Egyptian beard, as seen on the mummy cases, having an Osirian representation.

The chairman stated that his attention had been called, by the local surveyor of the Board of Health at Bow, to the discovery of a portion of a sepulchral slab of Purbeck marble, on digging a sewer on the site of the ancient Abbey of West Ham. He and Mr. E. Roberts had visited the spot, and found it to be 26 inches in length and 23 inches in breadth, giving a representation of the lower part of a Calvary cross, with trefoils and quatrefoils at the sides. The character of the work was neither pure nor good, and belonged to the commencement of the fourteenth century. The chairman also reported that inquiries had been made in regard to the preservation of the house visited during the congress, at Chester, in 1849, known as God's Providence House, having carved in wood on its front, "God's Providence is mine inheritance." This had been threatened with destruction, and it was intended to have had a brick front built instead of the present one of most remarkable character. By the laudable exertions of the Chester Archæological Society, this has been averted.

After various exhibitions, Mr. Planché read a paper "On a remarkable tomb at Albrighton, county Salop, which was illustrated by two very elaborate drawings, by Mr. Hillary Davies, of Shrewsbury. The tomb is of the thirteenth century, and almost entirely covered with armorial bearings. Mr. Planché demonstrated how impossible it was to assign with anything like confidence any of the shields sculptured upon it, to particular families without the farther assistance of colour: he, however, pointed out two or three that might be tolerably well depended on; and gave his reasons for believing that it was a monument to one of the De Willy or Willighley family, connected with the Pichfords, and probably commemorated Andrew Fitz Nicholas de Willy, slain at the battle of Evesham, in 1265.

SANITARY MATTERS.

Reigate.—The drainage of Reigate has long been a vexed question, upon which local party feeling, here as elsewhere, has at times run very high. Happily, however, there is now union and hope of amendment. Covered drains are to be generally extended, and the danger to public health lessened. The open drain from Reigate Hill and part of Wray Park, running through Nutley-lane and West-street, is about to be covered in by means of a pipe drain: this is hailed with delight by those who have hitherto suffered from the noxious vapours arising therefrom. A more comprehensive system, however, is much required.

Brighton.—The town council, by a majority of 32 to 18, have approved of the plan of the surveyor for the drainage of this town, and have referred it back to the Works Committee, by whom it was submitted, "to report upon the proper steps to be taken for proceeding with the works, and for raising money for defraying the expenses."

Winchester.—The local drainage committee is proceeding perseveringly in their laudable endeavours to cleanse "the dirty city," as it has been called. At last week's meeting, Mr. H. Moody

said some persons had expressed themselves offended by this name being given to Winchester, and it ought to be thoroughly understood what was meant by it. He made an inquiry the other day, and found that in the parish of St. Lawrence, which contained just over sixty houses, thirty of them had their cesspools inside the house, and all the others were in closely-confined courts. The Chairman (Dr. Crawford) said he believed there was one block of nine houses there, only one of which had a cesspool outside. Mr. G. Jacob said he was unfortunate enough to have three in his house. Dr. Smith said the town pump was in very bad company, and he thought its character was rather "shaky."

Ipswich.—At the council meeting last week Ald. G. Josselyn read a letter from Mr. P. R. Burrell. In it the writer said;—"I have had the opportunity this autumn of making myself acquainted with the different systems of sewerage adopted by the towns of Leicester and Rugby. By both systems the towns are freed from all sewage matter and the noxious influences arising therefrom; but in the former case, that of Leicester, the cost has been large, 22,000*l.*; the annual expense considerable, about 1,100*l.*; and the profit derived from the solid refuse nothing; as it is of so little value that it is given away gratis to induce people to remove it. In the latter case, that of Rugby, the cost was considerably less, about 1,000*l.*; the annual expense moderate, about 300*l.*; and the sewage water made to yield some profit by being leased for a term of years to a neighbouring proprietor for the purposes of irrigation. It is now generally admitted that the only way of utilizing town sewage is by irrigation, as the land is a natural and perfect deodorizer; thoroughly filtering the water and giving off the unabsorbed portion in a pure and pellucid state. I believe this plan, which is entirely free from all former objections of contaminating the river Orwell, to be the only one available for sewering the town of Ipswich. I would undertake to use the whole of the sewage; to lay down the necessary pipes and hydrants on my land; and pay a certain rent (to be fixed hereafter) per acre; the agreement to be binding on both sides for twenty-one years." The letter was unanimously referred to the sewerage committee; the mayor remarking that there was no question about its importance.

Hawick.—In an article "On our Sanitary Condition," the editor of the *Border Advertiser* says;—"To aid the Town Council in their endeavours to revolutionize our sanitary condition, and to mark the advent of a new epoch in our march of progress, we this week commence the first of a series of pen-and-ink sketches descriptive of the present state of our closes, lanes, bye-paths, alleys, and streets, beginning at the eastern extremity of the town." The writer very appropriately looks first at home; or, in other words, he begins with "the favoured spot where the literati do most congregate;" and asks *them* why they "do not bestir themselves in obtaining some redress for the filthy state" of their neighbourhood.

CHURCH-BUILDING NEWS.

Market Rasen.—The following tenders for the restoration of the parish church have been received:—Smith & Binns, Lincoln, 1,050*l.* 10s.; Wallis & Son, Rasen, 1,310*l.*; Freeman, Rasen, 1,318*l.* The amounts are net, and Messrs. Smith & Binns' tender has been accepted. The work will shortly be commenced.

Welby.—The church of Welby, which was re-roofed and restored externally last year, has just been completed by being cleared of the old pewing, which has been replaced by open benches of deal, stained. The pulpit and reading-desk (also new) are of oak, and the panels have been filled with the old Jacobean carving, which formed a part of the old pewing, with good effect. There is also a new communion rail of oak, supported by foliated wrought-iron standards. The aisle, &c. are paved with red and black quarries in patterns. The works connected with the interior restoration have been carried out by Messrs. Morrison & Brutnell, under the superintendence of Mr. R. W. Johnson, of Melton Mowbray, architect.

Stratford (*Essex*).—We are requested by the architect of the proposed church of St. Paul, Stratford, Mr. E. B. Keeling, to explain that the cost of 5,500*l.* includes endowment and expenses, besides 3,400*l.* for the works, let to Messrs. Dove, Brothers.

Oatlands Park, Walton-on-Thames.—A new church has just been erected in this beautiful locality, to supply the increasing wants of the residents and visitors. It consists of a nave, 65 feet by 24 feet 6 inches, a south aisle, 56 feet by 15 feet 6 inches, a chancel, with apsidal termination, 25 feet by 20 feet, and a south chancel aisle, 15 feet by 14 feet. There is a wooden porch, with glazed sides, at the western extremity of the south aisle. The bell-turret is on the east gable of the nave, over the chancel arch. The south aisle is divided from the nave by four arches, on piers, quatrefoil on plan; and the roofs consist of a series of framed rafters, pentagonal in form, boarded, and covered with red tiles of an admirable colour. The style is Flowing Middle Pointed, the windows exhibiting variety in the tracery. The walls externally are faced with Kentish rag, and internally, with Bath stone; the latter being also used for all the windows, doors, strings, and other details. The church will accommodate about 350 worshippers, and the cost has been 2,400*l.* The architects employed were Messrs. Francis, and the builders, Messrs. Keyes & Head. The edifice was to be opened on the 2nd inst.

Nailsea.—The parish church of Nailsea, near Bristol, which had fallen into a lamentable state of decay, has, during the last twelve months, been undergoing a course of renovation, and is now re-opened for divine service. The gallery in the south aisle has been removed. The high-backed pews in the upper part of the church have been taken down to give way to a number of open stained deal seats, providing thus the addition of a considerable number of sittings. The edifice is now fitted with sittings for 400. All the existing windows are new; and the stained glass which was scattered through them has been collected, and placed in one of the east windows. The restoration of the chancel has been undertaken solely by the rector, the Rev. F. Brown, at a cost of about 200*l.*, including a stained-glass window. A new open stained deal roof has been put up in the chancel. Arrangements for lighting the church for evening service have likewise been made. The walls have been re-plastered; and during the process a priest's door, which had heretofore been concealed from view, was discovered in the chancel. The roof of the church has been re-slated. The entire cost of the work has been about 1,000*l.* The work has been executed under the direction of Messrs. Fripp & Co., of Bristol, architects, by the contractor, Mr. Robert Newton, of Nailsea. The glass was provided by Mr. Bell, of Bristol.

Hooton.—The new church of St. Paul, Hooton, has been consecrated. The edifice has been designed in the Lombardo-Gothic style of architecture. Its site is almost immediately to the north-east of the Chester-gate of entrance to Hooton-hall, and is closely adjoining the public road. The edifice consists of a nave and chancel, with transepts surmounted by a lantern at their intersection. The nave is furnished with side aisles; and the chancel, whose eastern termination is a semi-circular apse, is surrounded by an ambulatory. The central lantern rises on a square pedestal above the four central pillars, chamfered off into an octagonal base supporting the lantern, which is crowned by a pyramidal spire. Exteriorly some effect has been obtained by the arrangement of two kinds of stone of which the edifice has been built. One of these is the Stourton stone, of a warmish grey colour: the other is a dark red stone got from Mr. Naylor's quarries on the Hooton estate, near Eastham. The window and door dressings, and the window shafts, are of the Hooton stone, with the exception of a band or two of Stourton stone, while the external pillar shafts are of Hooton, and the capitals of Stourton. Its total length from west to east is 105 feet. The width across the transepts is 52 feet. The width of both nave and chancel is the same, namely, 19 feet; and the aisles on each side are 8 feet wide. The total height of the lantern is 95 feet. Mr. J. K. Colling, of London, was the architect; and Messrs. Holme & Nicol, of Liverpool, were the contractors.

STAINED GLASS.

Eastham Church.—The west window of this old church has just been filled with stained glass, executed by Messrs. Ballantine & Son, Edinburgh. The window has two upright lights, with top tracery, and illustrates the Annunciation. In the dexter light is the angel presenting to Mary a stalk of lilies, and in the sinister is the Virgin bearing a pot of budding lilies. These figures are surmounted by early canopies. In the top central trefoil the dove is seen descending amid golden rays. All the openings are surrounded by borderings.

Lincoln Cathedral.—A stained window, by Messrs. Clayton & Bell, of London, is now being placed in the new buildings, at the east end of Lincoln Cathedral, to the memory of Dr. Butler, the late Dean of Peterborough. The top part represents the twelve Apostles; and in the compartments below are represented our Lord and Mary in the garden, supper at Emaus, St. Thomas and our Lord, Christ's charge to Peter, Peter and John, our Lord rising from the tomb, Angel and Soldiers, three Marys, Agony in the Garden, Pilate washing his hands, Bearing the Cross, and the Entombment of our Lord. The window, which is 19 feet 9 inches by 11 feet, was presented by Mrs. Butler.

St. Luke's, Leek.—The east window of the south aisle of St. Luke's Church, Leek, has recently been filled with stained glass, which bears the following inscription:—"To the glory of God, and in memory of Elizabeth Worthington, died June 1, 1861, aged 90 years, by her children. 1862." The window is of three lights, and the subjects are the Annunciation, Crucifixion, and the "Noli me tangere." The tracery and other portions are filled with escutcheons, emblazoned with the symbols of the Passion of our Lord; and the whole is intertwined with the vine-leaf, which gives it much richness and relief. The window possesses much breadth of effect, and harmony and richness of colouring, and is in every respect, as a work of art, worthy the reputation of its maker, Mr. Warrington, of London. Another window was a short time previously filled with stained glass by Mr. Nall, the first churchwarden, from Mr. Wailes, of Newcastle.

Ladbroke Church (*Warwickshire*).—A stained glass window has been erected in the south side of this church, by the Rev. A. Turner, twenty years rector of the parish, to the memory of his only daughter, who died in France, on Ascension Day, 1861. The window is of three openings, the centre one being filled with the subject of the Ascension, and in the side figures of Faith and Hope, under canopies, in which are introduced the Lamb and Pelican. It was designed and executed by Mr. W. Holland, of Warwick.

Broseley Church.—It is intended to erect a stained-glass window in the south aisle of Broseley Church, in memory of the late Mr. George Pritchard, and also to erect a public fountain to his memory.

Gloucester Cathedral.—The workmen of Messrs. Ward & Hughes, of London, have commenced the replacing of the glass in the great east window of this cathedral. Some months ago it was removed and forwarded to London, where it has been cleaned and releaded, under the superintendence of Mr. Winston. No modern glass, according to the *Gloucester Chronicle*, has been added. The stonework of the window has been entirely restored, under the direction of the cathedral architect, Mr. Waller.

Hunmanby Church.—A stained-glass window has been placed in the parish church, in memory of Mr. W. Sheriton, late agent to Admiral Mitford, of Hunmanby Hall. This window is from the establishment of Mr. Wailes, of Newcastle-on-Tyne. In design it is illustrative of the parable of the Good Samaritan, and comprises six distinct subjects in compartments, the upper tracery containing two angels, with scroll.

PROVINCIAL NEWS.

Colchester.—Government has accepted the tender of Messrs. Lucas, Brothers, for the erection of the new Cavalry Barracks, in extension of Colchester camp. The original estimate was 52,000*l.*, and the amount of the contract is understood to be 49,700*l.* Seven other firms tendered for the undertaking. The works are to be completed in twelve months. The barracks, which are for a regiment of cavalry on the home strength, and are to be formed in blocks, affording accommodation for about seventy-two men each, will be built of red brick, two stories high, except the officers' quarters, which are to be of three stories. Although these works will exhaust the Parliamentary grant of 60,000*l.*, made during the last session; it is understood that further sums will be asked for in order to carry out the entire plan, which embraces suitable accommodation for two or three batteries of artillery and a strong body of royal engineers. This scheme will bring together the various branches of the service, and make Colchester the principal military station of the eastern district of England.

Rochester and Chatham.—At a special meeting of the Estate Committee of the Corporation, the erection of the new town quay, the plans and drawings for which were laid before the committee by Mr. Andrews, the city architect, was considered.

The new quay will occupy, as nearly as possible, the site of the old town quay, which was taken by the bridge wardens, several years since, on the occasion of the building of new Rochester bridge, and who have presented the city with the site on which to erect the new town quay, which will be formed at the vacant piece of ground between the railway bridge and the offices of the water-bailiff. The plans were approved, and the work will shortly be commenced. The cost will be from 1,000*l.* to 1,500*l.*

Cardiff.—The two additional wings and rearrangement of the entire building of the Cardiff Infirmary are nearly completed. These extensive alterations have been effected at a cost of nearly 3,000*l.* The architects employed are Messrs. Paull and Robinson.

THE 1862 EXHIBITORS.

SIR,—Now that the Commissioners have issued a list of prices for season tickets, and shown how much visitors without them will have to pay, I ask, through the *Builder*, what is to be done for the exhibitors. In 1851 we had to pay the same as any one else; the only favour granted to us, after a deal of noise, being that we were allowed to enter gratis on the closing day of the exhibition, when many of the best things had been removed from the building.

I trust, however, that this time the Commissioners will act more liberally, and either grant a *free pass to each exhibitor*, at any rate in the fine-art sections, which is what they ought to do, or else issue exhibitors' season tickets at 1*l.* 1*s.* each.

EXHIBITOR.

STRIKES AND SKILLED LABOUR.

SIR,—In perusing each weekly issue of your valuable periodical, one cannot help being struck by the constantly occurring notice of *strikes* in every department of mechanical labour; and it becomes painfully evident that this unhealthy state of the labour market requires the earnest attention of the state physician. No work of magnitude is at present being carried out on which this system has not told, often to the grievous loss of the contractor, and social and moral harm to the labourer and his family. One cause of this evil may, I think, be attributed to the system of preventing more than a certain number of apprentices being articled in certain workshops. Thus it is evident that, whilst there is no lack of work to be done, we are not providing sufficient skilled workmen to do it. The workmen are divided into Unionists and non-Unionists, the former on all occasions refusing to work where one of the latter is employed; so, whilst work and capital increase in the country, skilled workmen decrease; and it is only by throwing more of this skilled labour into the market, and increasing the body of non-Unionists, that the evil will be in any measure remedied.

The means by which this may be attained are not novel, though the application may be. We must take the rough ashlar of refuse humanity and labour to dress it to the smooth ashlar,—a *useful* member, if not an ornament, of society. Amongst the useful and ill-educated poor our reformatories are doing a very great deal of good, and it is to be hoped that the day is not very far distant when no such very slouching character as Poor Joe, "who never knowed nothink," will be recognizable by this generation. "Much has been done, yet more remains to do." Are these youths, when again turned from their home, fit to labour truly to get their own living? I fear, from the criminal returns, that question cannot be quite satisfactorily answered.

In our model prisons another course is adopted, and men are taught therein some useful occupation,—basket-making, tailoring, shoemaking, &c., &c.,—and then when again let loose on society they in most cases are able by the work of their hands to obtain an honest living. Why not employ the same means with the convicts at Dartmoor, Portland, the dockyards, &c.? Why not turn these members of society, at best only good labourers or bad workmen, as they are at present released, into those very skilled artisans of whom we are so much in want. Their term, varying from three to any number of years' penal servitude, gives time to convert the unskilled into the skilled labourer, and turn those beetle-browed, mischief-brooding, unhappy masses of villany into self-respectful, thoughtful, happy members of a useful community; able, if set down in any part of the world, to do a good day's work for an honest day's pay; in fact, an acquisition rather than a burthen to their neighbours. For example, how few really good clever masons there are, how difficult to be got at, and how independent when employed; fully accounting for the stiff unadorned buildings we see everywhere. Yet we have boundless resources in men and limestone at Portland; the one only waiting to be taught the mode of working the other. And by properly using his chisels and his drawing-board, his fancy tutored, how would a man's mind be elevated by feeling himself rapidly becoming a skilled art-mason: he would be born, as it were, again, in a new world, with a new idea of and a new place in it; and, by thus opening a path to honourable distinction among his fellows, it would only be by neglecting those attendants on the truly industrious—sobriety and perseverance—that he could fail to become honoured and happy in that state of life in which it had pleased providence to place him;—carpenters, joiners, plasterers, brick and tile makers, learned in cunning devices, and turned out thorough workmen. No trade might be without its representative;—allowing men to choose that for which they felt themselves best adapted, and giving them on their leaving certificates of their proficiency; and further, *allowing* them to exceed their term (if a short one) to enable them to thoroughly learn their art. Surely this country would be celebrated in all parts of the world for the character of her workmanship; and I believe that ere long the competition which would naturally arise between the excellency of convict and free labour would have a most beneficial effect on the British workman. Nor do I consider that the labour-market would be ever overstocked; although I cannot but suppose skilled workmanship would be cheaper and more often visible than at present: this would be a great benefit to the general public. The labourer may say he is not sufficiently paid; but, if he looks around, he will see he can oft times make three times as much as the poor clergyman, who, having had to expend large sums on his education, yet has to live, tax his brain and energies on his mission of mercy, and often have to provide for a large family, on 60*l.* a year. Or, if he looks to those who employ him, how many architects or engineers, often in the prime of life, will he see who have also had large sums expended on their education, are men of talent, and whose income is but half that of the skilled workman whose work is designed and guided by him.

J. J. A.

NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.

LONDON MEETING, 1862.

THE preparations for the sixth annual meeting of this Association, to be held in London in June next, are now in active progress. It is intended to secure the support of the entire metropolis; and the Lord Mayor, anxious that the City should take the lead, has convened a public meeting, to be held at the Mansion House on Tuesday next, the 11th instant, when a Reception Committee will be formed, and other steps taken to promote the success of the Congress. A numerous attendance is expected, as several leading members of the Association will take part in the proceedings. The Lord Mayor will take the chair at two o'clock precisely.

ARCHITECT AND PUPIL.—WIMBRIDGE *v.* EDWARDS.

THIS was an action (in the Court of Exchequer) for a breach of contract, under which the defendant had undertaken, in consideration of a premium of 99*l.* 19*s.*, to teach the plaintiff's son the business of an architect. The defendant pleaded that he had not neglected to teach the plaintiff's son, but that the latter had refused to obey his lawful commands.

The plaintiff is the gatekeeper of Victoria-gate, Hyde Park; and he apprenticed his eldest son to the defendant, an architect in Brunswick-square, in September, 1858, paying 99*l.* 19*s.* premium. The plaintiff's son remained with the defendant for about two and a half years, when he left, on the ground that the defendant employed him in colouring plans, instead of teaching him the profession practically.

Before the plaintiff's case had closed, an arrangement was arrived at by which a juror was withdrawn, on the terms that the defendant should pay the plaintiff 20*l.* for costs out of pocket.

LEICESTERSHIRE ARCHITECTURAL SOCIETY.—The general annual meeting of this society has just been held at Leicester, when the usual report was read, the seventh since the formation of the society, and adopted. The accounts showed a balance of 26*l.* in hand. Various articles of interest were exhibited at the meeting. It was resolved that the general meeting in the summer of 1862 be held at Bosworth.

Books Received.

Specimens of Early French Architecture, selected chiefly from the Churches of the Ile de France, and Illustrated in Geometrical Drawings and Perspective Views. By ROBERT J. JOHNSON, Architect, 10, Belgrave-street South, Pimlico. Parts 1, 2, and 3.

MR. JOHNSON proposes to give in this work some of the best specimens of French architecture of the twelfth and thirteenth centuries, in about a hundred plates; of which at least one half will be devoted to plans, elevations, sections, and details, of the various buildings, from actual measurement: the remainder will consist of perspective views, drawings of sculptured capitals, and other decorative features. Various portions of Laon and Noyon Cathedrals are given; also that of Nôtre Dame, at Chalons-sur-Marne, with one of its towers and the old spire. St. Leu d'Efferent is fully illustrated, as the fine character of its work deserves. The noble desecrated church of St. Frambourg, at Senlis, is also illustrated; with a number of smaller buildings, such as Cauffry, Angry, and Cambronne, well worthy of careful study.

The author says,—"The examples have been selected to display that nobleness, simplicity, and masculine vigour so strikingly characteristic of the architecture of the period in France; and it is believed that those who are studying Christian architecture, either as antiquaries or practical men, will find the result of a laboriously-measured series of specimens of the utmost value."

The third part, just published, appears to have had scarcely the same amount of time given to it as the first and second. We hope a sufficient number of names will be sent to Mr. Johnson, as subscribers, to encourage him to complete his intention in his best possible manner. He is evidently quite able to do it well, and the result would be a very valuable work.

Miscellanea.

WAGES IN MELBOURNE, VICTORIA.—In 1854 the wages of masons, blacksmiths, and carpenters in Melbourne was 30*s.* a day. The rate is now 9*s.*, but the expense of living is only two-fifths of what it was at the period referred to.

THE WAGES QUESTION.—Meetings of the nail-forgers of the Lye district have been held, at which it has been resolved that there should be a general strike, unless the 20*s.* rate was paid by the masters. In order, however, to show their desire of conciliation, the men resolved first to visit the masters, and ask if they would consent to pay the ordinary rate of wages. This was done, and at a recent meeting it was announced that the masters had expressed their willingness to pay the 20*s.* rate. There were some four or five dissentients among the masters, and the hands in their employ were accordingly put on strike. It was also resolved to take measures to put down the truck system.

ADDRESS ON LAND AND BUILDING SOCIETIES. Mr. William Chambers, the journalist, delivered an address on "Land and Building Societies as conducted in England," at a public meeting of the Architectural Institute of Scotland, held last week at Edinburgh. There was a large attendance. The chair was occupied by Mr. J. D. Peddie, senior member of the council of the Institute. Mr. Chambers gave a very interesting account of the building societies' proceedings at Birmingham, Wolverhampton, London, &c. In Birmingham, he stated, there are from 8,000 to 9,000 houses with gardens allotted, and partly already paid for, and partly in course of being paid for, by the working-class inhabitants; 90 per cent. of whom are mechanics, with 24*s.* to 30*s.* a week. Their average annual investment is 18*l.* The societies thus receive about 150,000*l.* per annum in redemption of the dwellings, which appear to average 120*l.* to 180*l.* each; including 40*l.* to 50*l.* each for land or site. Mr. Chambers speaks of 10,000 members belonging to the Birmingham societies. Throughout England and Wales there are said to be 2,000 land and building societies, comprehending more than 200,000 members. The money paid in to the societies now amounts to above eleven millions, of which upwards of eight millions have been invested in property; part of the overplus having been repaid with interest. Mr. Chambers regards the cultivation of habits of prudent forethought and frugality, sobriety, self-respect, and independence, as amongst the most important of the results of the movement.

CITY IMPROVEMENTS.—It has been decided to utilize the space the recent fire formed in Paternoster-row, by opening a street into it from St. Paul's Churchyard. To effect this long-desired improvement, it will be necessary to widen the narrow and inconvenient thoroughfare of London-House-yard; and the inhabitants of the locality have been served with notices that their tenements will be required for the proposed alteration.

PROPOSED PUBLIC PARK AT GATESHEAD.—At a public meeting held in the Town Hall, Gateshead, the report of the committee appointed to negotiate with Mr. Askew and Sir Walter James, Bart., relative to the purchase of ground for a public park, was read. The committee recommended that an offer be made to Sir Walter James of 6,000*l.* for his 30 acres of the Shipcote estate, (which he had offered for 7,000*l.*), but subject to the condition that they should be at liberty to withdraw their offer at any time during the next six months. The report, after some discussion, was adopted by a large majority. "Sir Walter and Lady James," says the *Gateshead Observer*, "have accepted the offer made them by the Gateshead committee, of the sum of 6,000*l.* for 30 acres of land at Shipcote. Gateshead is in a fair way, therefore, of having a beautiful place of recreation provided; and with the hills improved, and good roads made, a long-desired consummation will be gratefully acknowledged by ourselves and our fellow-townsmen."

BLACKFRIARS BRIDGE. — The report of the Bridge House Estates Committee, recommending Mr. Page's design of a new bridge of three arches, at an estimated cost of 245,000*l.*, is now under the consideration of the Court of Common Council, who have held one special meeting on the subject, which was adjourned for a fortnight,—to this day, Friday. Mr. Vallance, the chairman of the committee, moved the adoption of the report, and expressed his opinion against a proposed bridge of five arches, which he said would better suit the purposes of the London, Chatham, and Dover Railway Company; and in favour of the one with three arches, which he maintained would give much more water-way. This was denied by Deputy Fry, one of the minority of the committee, who insisted that they had not a sufficiency of professional assistance; so that the report was the result of the deliberations of unpractical and unscientific men. Mr. Page, he said, had estimated the bridge at 280,000*l.*; but, after Mr. Cubitt had proposed to erect the structure for 245,000*l.*, Mr. Page had found he had made some extraordinary mistake in his calculations; and then undertook to build the bridge at Mr. Cubitt's estimate. Mr. Page, he added, had admitted a mistake of 3 feet 6 inches in the gradients; and he (Mr. Fry) believed the Surrey side level would require to be raised 5 or 6 feet, or to the first-floor windows.

MISTAKEN ORDERS.—*Galignani* informs us that the Civil Tribunal of Limoges gave judgment in a suit between Mr. Elias Robert, sculptor, and Mr. Ardant, mayor of the town, which had arisen under the following circumstances:—In September, 1860, a bronze statue of Marshal Jourdan, modelled by Mr. Robert, was inaugurated at Limoges; and the mayor, in his speech on that occasion, after enumerating the eminent men born in the Limousin, among whom was Marshal Bugeaud, asserted that he too should have his Elias Robert, and that a statue should be erected to him the following year. After the ceremony Mr. Robert waited upon the mayor; and from what then passed between them he concluded that the mayor had given him an order for a statue of Marshal Bugeaud. Count de Cardaillaick, who was present at the interview, also came to the same conclusion. Mr. Robert accordingly, on his return to Paris, applied to the Duke d'Isly for the costume worn by the marshal in Africa, and proceeded rapidly with his model. In March it was completed, and Mr. Robert informed the mayor that it was ready for his inspection; but that official immediately replied that Mr. Robert was labouring under a lamentable mistake in supposing that any positive order had been given for the statue; and also that the committee appointed to organize the subscription had decided that the artist should be chosen by competition. As the mayor absolutely refused to acknowledge having given any order to Mr. Robert, the latter applied to the Civil Tribunal to compel the mayor to indemnify him for the six months' labour he had employed on the model. The mayor's counsel declared that his client could not have given any absolute order; that although he might have promised to use his influence with the committee in favour of Mr. Robert, he had done nothing more. The court, in the absence of all documentary evidence, adopted that view of the case, and rejected Mr. Robert's demand.

FATAL ACCIDENT AT THE UNDERGROUND RAILWAY WORKS.—An inquest has been held before Mr. Payne, coroner, at St. Bartholomew's Hospital, on the body of Patrick Casserley, aged 42, who was employed as a labourer at the underground railway works at Clerkenwell. In descending the shaft he did not wait for the skip, but caught hold of the rope to let himself down; missed his hold; and fell head foremost nearly 60 feet. He died from the injuries received. Verdict, accidental death.

FALLING OF A BRIDGE ON THE DORSET CENTRAL RAILWAY.—An accident has occurred at Pitcomb, on this line, the arch over the turnpike road suddenly giving way. A large portion of the lower ring of brickwork fell into the road. An engine from Templecombe was approaching at the moment; and before the signal to stop could be made, the engine, to the relief of the spectators, passed safely over the remains of the bridge. The contractor having determined to pull down the damaged arch, labourers were at once set to work, and the remains were soon cleared away, the abutments only being left standing. It has been determined to put a flat iron top to the bridge.

PRIMROSE-HILL.—Those who feel how inestimable, in every point of view, is such a tract of open ground, will regret to hear that the whole northern side of the hill, from the wooden paling which passes across near its summit, to the railway, including about fifty acres of land, is now likely to be covered with houses. The southern portion of the hill was obtained, we believe, through the instrumentality of Prince Albert, from the Eton College, the trustees of which received land from her Majesty's Government in exchange. The northern portion is now offered on building leases, with the other part of Chalcot Estate, extending over the fields as far as Belsize, near Hampstead. The fifty acres in question might now be obtained by Government by exchange, as before; and the great importance of this purchase is much increased by the fact that the contemplated building over Chalcot Estate will render every acre of open space more and more valuable to the public.

THE TIMBER TRADE. — Messrs. A. F. & D. Mackay, of Liverpool, in their annual timber circular, say:—The trade in wood during the past year has been affected to a considerable extent by the complications which were threatened in America. These checked building operations, which in turn were further impeded and considerably circumscribed by strikes. Happily, these last-named causes have been temporarily alleviated, if not absolutely removed; and there seems reason for believing that operatives and employers see more clearly their mutual and common interests, and that this perception will lead to a better feeling on both sides. The stocks on hand, at the conclusion of the previous year, were, generally speaking, moderate in amount; and during the year 1861 the imports were rather larger than they had been in the year preceding. The year's business has not been so profitable as might have been desired to either the producer or the shipowner.

THE LATE CATASTROPHE IN THE HIGH-STREET OF EDINBURGH.—Two reports, by professional men, on the fall of the tenement in the High-street, on the 24th November last, are known to be in the hands of the authorities. One of these is the joint report of Messrs. James Leslie & David Stevenson, civil engineers, to whom the matter was remitted by the Procurator-Fiscal two days after the fall of the building. It is understood that these gentlemen attribute the catastrophe to the subsidence and ultimately sudden fall of the wall running from east to west which existed in the centre of the building, and that such fall was occasioned by the wall having been on the lower floors pierced by successive alterations for the "improvement" of the property, till it became quite incapable of sustaining its own weight, independent of that of the upper floor, the joists or beams of which ran into and rested upon it. The other report is by Mr. John Dick Peddie, architect, made subsequent to, and with knowledge of, Messrs. Stevenson & Leslie's report. It is understood that Mr. Peddie substantially concurs in those gentlemen's views of the causes of the catastrophe, though he attributes more weight to certain specified alterations of the central wall than they do. We believe that Mr. Peddie also expresses much regret that examination of the building had not been made immediately on symptoms appearing of the subsidence of the wall, and also that the examinations on the Saturday previous to the catastrophe of Sunday morning, which were only partial, had not been more searching and complete.—*Scotsman*.

ACCIDENT AT THE EXHIBITION BUILDING.—On Saturday last, whilst a smith was driving in the rivets of one of the girders with a sledge-hammer, William Powell, his assistant, suddenly raised himself to an upright position, and received the full force of the intended blow on his head. The unfortunate man's death was instantaneous, his skull being shivered to pieces.

EAST LONDON MUSEUM AND LIBRARY. — We have received a letter, signed, on behalf of the Working Men's Association, "R. T. Robinson, chairman; W. T. Rogers and W. Dutchess, secretaries," satisfactorily accounting for the funds collected by them (6*l.* 2s. 11d.), and expressing the regret with which they find themselves unable at the present moment to effect anything towards the end proposed, through the dissolution of the parent committee. They obtained 10,500 signatures to a petition, and complain that it was not so effectively used by the parent committee as it should have been. They say, however, they are still willing to work, if properly set going.

YORKSHIRE ARCHITECTURAL SOCIETY. — The annual meeting of the members of this society was held at York on Wednesday. The Rev. T. Bayly, one of the hon. secretaries, read the minutes of the proceedings of the committee for the past month, and also the annual report, which narrated the operations of the society for the past year, the most prominent of which have previously been mentioned in our columns. From a statement of accounts presented to the meeting it seems that the society has a balance in hand of 64*l.* 5s. 5d. Mr. J. C. Swallow, who had announced his intention of reading a paper on "Early Christian Art," to be illustrated with drawings, stated that as the attendance of the members of the society was so limited, he should, by permission of the meeting, decline reading his paper on that occasion, and give it at some future time under more favourable circumstances.

VENICE; HER ARCHITECTURE AND PICTURES. On the 27th ult. a lecture was delivered at the Philosophical Institution, Bristol, by Mr. J. B. Atkinson, on "Venice; her Architecture and Pictures." Commenting on Gothic architecture he said, the early years of hard conflict for simple existence being passed, days for more joyful growth ensue. The capital is crowned with flowers: garlands are hung about the arches: roses adorn the spandril: the ivy threads the fillet: the window weaves itself into foliated tracery: the vault entwines in a lace-work of branches, rising from forest stems; and thus the fabric swelled: first it struggled into strength, and then it sprung into liberty and beauty. This was Gothic architecture from a naturalistic point of view. Some critics, however, were wholly sceptic: others, again, had faith, which led them beyond nature into the sphere of the spiritual and the supernatural. Gothic architecture, it had been said by these enthusiasts, not without show of reason, is the Christian religion thrown into stone, embodying in visible form the aspirations of faith and hope, the catholicity of the Christian church, the semblance of divine mysteries, the gloom which shrouds the sinner, the light which shines upon saints and the beauty of holiness to all believers. In the just combination of these somewhat conflicting claims the lecturer deemed the truth would be discovered. He thought that ecclesiastical Gothic in Venice was inferior to the cathedrals of the North; but that in the adaptation to secular purposes Venetian Gothic was without a rival. The Italian Renaissance was defended against the charges of Pagan and corrupt. The lecturer explained the peculiar adaptability of the Italian Renaissance to the wants of modern civilization, as seen especially in the palaces of Venice; and in conclusion he suggested that "the battle of the styles" should end in peace. He next described the Venetian school of painting as seen in the works of Titian, Tintoret, and Veronese. Venice being thus constructed, her architecture and pictures were criticised first in their liberty; secondly, in their lawlessness; and lastly, in their luxury. In Venice all styles were found in such close juxta-position that flat-topped windows, round arches, and pointed arches often mingled in utmost freedom. Venetian architecture was always indeed in transition, passing into some unaccustomed development with the fickleness of a republic ever eager for change, and the falseness of an oligarchy tainted by corruption. But secondly, in Venetian art, especially in the later Renaissance, they had to deplore that freedom degenerated into debauch. The commerce that enriched did not always enlighten, the arts which refined at length pandered to corruption: they rose in abstemious virtue: they sank in the intoxication of excess.

SEWER GASES IN HOUSES, DRAWN BY THE HEAT OF FIRES.—No trap has been made to prevent heat from drawing up the gases from sewers, especially if very old and highly saturated with sewage matter. New houses are less likely to have foul-smelling drains than old ones,—Osborne and Balmoral less than old Windsor. Twenty or thirty years have caused drains to be foul. What will they be in sixty years? In this "winter of our discontent" it becomes a question, "Who is safe?" No paper has opened my eyes like the *Builder* on this deep-seated evil. Good must arise from it.—C. M. D.

GAS.—The Worcester Gas Company have declared a dividend at the rate of 7 per cent. per annum.——The Newcastle Gas Company have declared a dividend for the half-year of 6½ per cent. per annum. The extensions and improvements lately effected in the company's works have not only enabled the directors to give to the town a plentiful supply of good gas during the winter, but to project various needful extensions and alterations in the sizes of the mains.——The directors of the Collingham Gas-light and Coke Company report the plant and buildings in good condition; a large increase in the consumption of gas; and in all respects the prospects of the company satisfactory. They recommend that the dividend be 6 per cent.

A HIGH-MINDED ARCHITECT AND FLIGHTY FRIENDS.—The German correspondent of the *Revue Britannique* mentions the circumstance that the chimney of a manufactory at Hagen, more than 400 feet in height, having been put out of perpendicular by a storm, the architect succeeded in setting it right; and on the 29th of October last, wishing to celebrate his success, erected a wooden chamber on the summit of the chimney, properly lighted, and invited to it a number of his friends. The steam-engine which had been used to raise the materials lifted the guests to it with the rapidity of lightning, and at the close of the banquet brought them safe and sound to earth again. This architect, continues the writer, is worthy to be an Englishman. A son of Albion could not have done better!

THE DANCE OF DEATH; OR, ARSENIC IN BALL-DRESSES AND WREATHS.—Most of our readers will have heard of the death of a poor girl who earned her livelihood by artificial-flower making; chiefly in the deadly green, of lively hue, which arsenic gives to wreath-leaves; and in the preparation of which leaves the faces of the poor victims of fashion require to be wrapped tightly round with towels; in spite of which the subtle powder penetrates the system and does its deadly work in hundreds of cases, as in the recent instance just referred to. This sad occurrence seems to have excited alarm, as well it might, amongst a far different class of society than that of the poor flower-girls; and we observe, from the *Times*, that the Right Hon. William Cowper lately requested the well-known chemist, Dr. Hofmann, of the Royal College of Chemistry, carefully to examine the green-colouring matter of some artificial leaves from a lady's head-dress which Mr. Cowper sent him, and which, perchance, had adorned the brow of some fair lady of his acquaintance. Dr. Hofmann did so; and, on analysis, found that, in a single dozen of these leaves, there were ten grains of arsenic; so that in the ball-wreath of a lady there must be at least forty grains,—a quantity capable of killing twenty persons!! The central ornament of these "lovely wreaths" ought assuredly to be a death's head and cross-bones; and so should the prevailing pattern of those beautiful green tarlatans so much in vogue of late for ball-dresses; and which, according to Professor Erdmann, of Leipsic, consist of a judicious mixture of tarlatan and "half its weight" of arsenic, in the form of "Schweinfurt green," loosely laid on with starch, and dusting off "in clouds" by the slightest friction! A ball-dress requires, it seems, about twenty yards, which contain 900 grains of white arsenic; and a Berlin physician has satisfied himself that sixty grains powder off from a single dress at a single ball! Well may Dr. Hofmann remark that "the arsenic-crowned queen of the ball, whirling along in an arsenic cloud, presents, under no circumstances, a very attractive object of contemplation;" but the spectacle is a still more repulsive and fearful one when the poisoning of the poor people who manufacture such wreaths and dresses is also considered. Dr. Hofmann's letter to Mr. Cowper has very properly been handed over to the Ladies' Sanitary Association; and, with a letter to the *Times*, signed "Georgiana Cowper and Elizabeth Sutherland, Secretaries" to that society, it has been published, for the *grave* consideration of fashionable ladyhood.

THE NEW "COLSTON'S HALL," BRISTOL.—Progress is being made with the preliminary arrangements for commencing the works. The plans prepared by architects for this contemplated building have been sent in for the examination and choice of the committee. The competitors are Mr. J. H. Hirst, Messrs. Popes & Bindon, Messrs. Fosters & Wood, Messsrs. Fripp & Ponton, Mr. J. A. Clarke, Messrs. Godwin & Hine, Mr. W. Pocock, Mr. H. Masters, Mr. J. B. Gabriel, and Mr. T. R. Lysach.

CEMENT FOR ROOMS.—A recent invention by M. Sorel is described to us. He states that the invention consists in the discovery of a property possessed by oxychloride of zinc, which renders it superior to the plaster of Paris for coating the walls of rooms. It is applied in the following manner:—"A coat of oxide of zinc mixed with size, made up like a wash, is first laid on the wall, ceiling, or wainscot, and over that a coat of chloride of zinc applied, being prepared in the same way as the first wash. The oxide and chloride effect an immediate combination, and form a kind of cement, smooth and polished as glass, and possessing the advantages of oil paint, without its disadvantages of smell, &c."

THE RUINS OF CHICHESTER CATHEDRAL TOWER.—A sale by auction was lately held in the Cathedral yard, of the greater portion of the stone which belonged to the old structure. All the moulded stone has been preserved, either to be worked into the new structure, or to serve as models for its restoration; also the stones which have been considered useful for the rebuilding have been retained. A considerable quantity of small ashlar rubble and flints has been disposed of. The total sum yielded was 235*l*., the price being rather above the price of bricks at the same measurement. The larger portion was purchased for the erection of a dissenting place of worship at Funtington.

NEW MINERAL PASTE.—A new material has just been produced by Mr. J. S. Manton, of Regent-street Works, Birmingham, which is said to be likely to enter largely into the manufacture of many articles in connection with the Birmingham and Sheffield trades. The new material consists of mineral, earthy, arenaceous, or other such substances, including animal shells of all kinds, as pearl or oyster, glass, pebbles, marble, slate, ballast, or slag. These are powdered and amalgamated into a paste under a great heat. In this state the material, as a plastic composition, is capable of a very extended application to the fine arts. It can be readily transferred to dies, and will receive the sharpest impression. It may be made of any required colour, and is susceptible of a surface as polished as the best finished ivory.

CROZIER TESTIMONIAL, BANBRIDGE.—The design of Mr. W. J. Barre, of Belfast, for the pedestal on which is to stand, in the town of Banbridge, the colossal statue of the late Captain Crozier, R.N., by Mr. Joseph R. Kirk, has been selected as the best out of about fifty submitted in competition to the committee. According to the *Dublin Builder*, "the pedestal is designed after the English manner of the thirteenth century, and consists of a subplinth, base, shaft, and cornice. The subplinth is 14 feet square and 2 feet high, splayed about 6 inches. On the centre of the north side is carved, in Mediæval characters, the name Crozier. Upon the subplinth stands the base of superstructure, with the bases of the buttress-piers radiating from the angles diagonally. Immediately from the base rises the die of the pedestal, which is here broached into octagonal form on plan, and is surrounded at four angles by flying buttresses rising out of the diagonal piers before named. Upon the arches and the part of the buttresses from which pinnacles usually rise (here cut horizontally), are placed four polar bears, carved, life size, and each intended to stand in a different *pose*. The shaft, which is octagonal, rises from the die to a height of 9 feet, and is surrounded by eight pillars placed at its angles, each with moulded base and capital carved in emblematical foliage. Above these pillars are eight arched and foiled opes, with carved rope angles and bosses supporting the cornice, which will have carved monograms, anchors, heads of polar dogs and bears, and other emblematical illustrations of incident in Arctic voyages. Over the cornice is a weathered broach diminishing to an octagonal platform, 3 feet 9 inches in diameter, upon which is to stand the statue. The entire height of the pedestal is 17 feet, the height of the statue 7 feet 6 inches. The material will be, for subplinth, Armagh limestone; columns round shaft, polished red granite; and the remainder of Glasgow sandstone.

ERECTION OF FIVE NEW DRINKING-FOUNTAINS IN CLERKENWELL.—The vestry of St. James's, Clerkenwell, has decided upon erecting five new drinking-fountains, viz.,—A standard fountain on Clerkenwell-green, one at the junction of Spencer-street and St. John-street-road, and another near the Cobham's head, Coldbath-square, and two mural fountains—one near the Belvidere Tavern, and the other at the corner of Wilderness-row.

LECTURES ON SCIENCE INSTRUCTION.—The first of a course of lectures on "Science Instruction" was given at the South Kensington Museum on Monday last. The subject was Vegetable Physiology and Economic Botany, and the lecturer Dr. Lankester. The Rev. B. M. Cowie, Dr. Percy, Mr. W. W. Smyth, Professor Hofmann, and Professor Huxley, on their various subjects, will follow on succeeding Monday evenings.

THE MULLER ORPHANAGE AT BRISTOL.—With reference to the statements which have been made, that the original estimate for building, speaking of the third Orphan House, was 35,000*l*., and that the total receipts for the Building Fund of the third house from the commencement to the time the accounts were last made up have been 46,600*l*. 17s. 3d.; the architects, Messrs. Fosters & Wood, say the facts are these: the original estimate for the second and third houses was 35,000*l*. The total receipts on account of the second and third houses are reported to have been 46,600*l*. 17s. 3d. The third house has cost, exclusive of ground and furniture, somewhat under 20,000*l*.

FIRE AT BATTERSEA.—On Tuesday night, about nine o'clock, great alarm was caused in the immediate district of Vauxhall, Battersea, and Wandsworth, in consequence of the sudden outbreak of an extensive fire in the premises known as Messrs. Cochrane's, the contractors for building the new Westminster Bridge. The property in question covered several hundred yards of ground. The portion which faced the public road was from 400 to 500 feet long. This consisted of immense piles of timber, probably 60 or 70 feet high, at the top of which were immense "travellers," each weighing three or four tons. Stretching about midway of this structure extended, almost to the water-side, a tremendous range of workshops, used as fitting, planing, and erecting shops, in which a large quantity of machinery and partially-finished work was deposited, roughly estimated at several thousand pounds sterling. The damage done was very great. It is stated that the completion of Westminster Bridge will not be interfered with by the accident. It is to be hoped not, for this structure has already dragged its slow length along until the public are tolerably well tired.

THE SHEFFIELD TRADE OUTRAGES.—From a letter forwarded to us by the president and secretary of the Association of Organized Trades of Sheffield, which comprises twenty-five trades and upwards of 3,000 members, we find that, at a numerous meeting of delegates of this association, on the 29th ult., a long discussion was held on the subject of these outrages; and a statement was prepared, of which a copy is sent us, repudiating, in strong terms, all connexion and all sympathy with such villanous tactics. To the thousands of worthy men among whom, as unionists, unfortunately, the guilty persons must still be classed, such a blot upon their respectable body cannot but excite in them both pain and indignation; but we think that less of the indignation might have been levelled against those who have felt it their duty to society, and to trades' unions themselves, to denounce so persistent and so pernicious a code of secret tactics; adopted, most assuredly, by Sheffield unionists, although not countenanced by the published rules of their joint association, and, indeed, we understand, not even practised at all in any but a very few of the trades in union. Some of the strongest advocates of trades' unions have taken part in the denunciation of the crimes in question; and it is worse than useless to call, as the Sheffield unionists do, upon those who thus have publicly taken part against these crimes, to "prove" the connexion of the unionists with them. Where crimes are secretly committed, the public are justified in suspecting even where they cannot prove; and unfortunately the innocent but too frequently thus suffer along with the guilty, or even while the really guilty are safely ensconced from blame or suspicion in the midst of the secrecy in which their deadly doings are involved. Till such doings as those at Sheffield *are* at an end, the whole body of the Sheffield unionists cannot but be exposed to public suspicion and obloquy; and we sincerely trust that we *have* heard the last of the Sheffield trade outrages.